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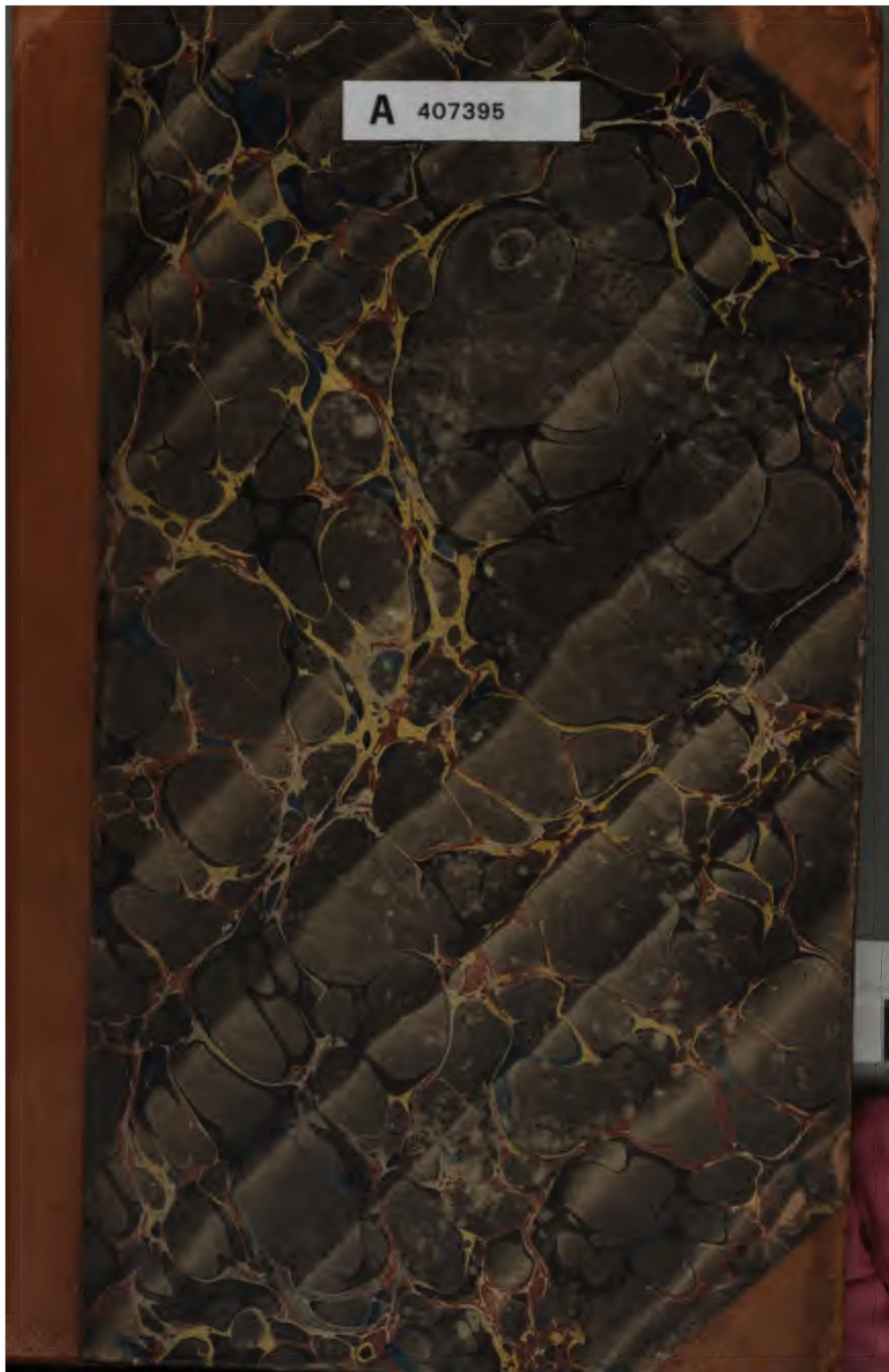
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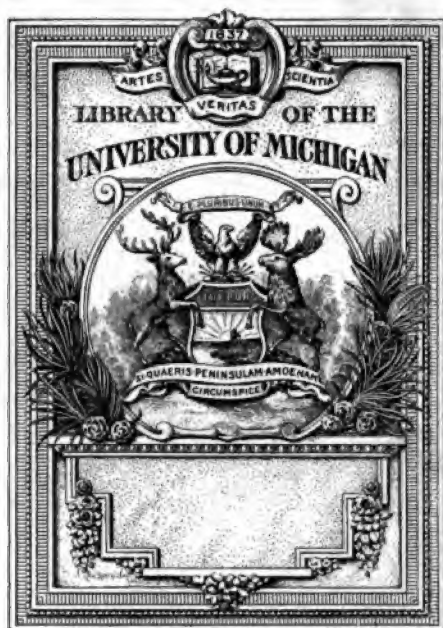
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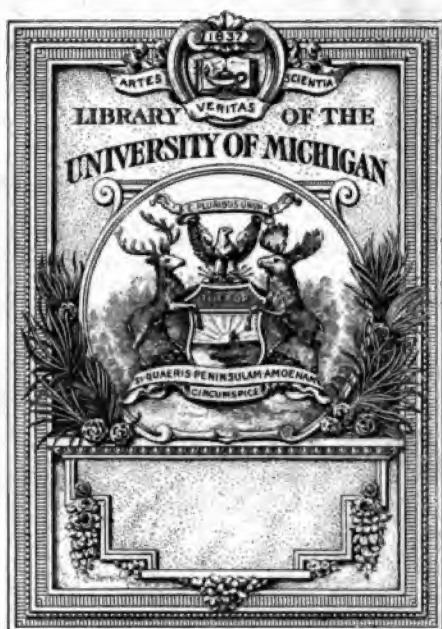


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OF THE
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BEING

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TOGETHER WITH

A SERIES OF CRITICAL REPORTS ON THE PROGRESS OF MEDICINE AND THE COLLATERAL SCIENCES DURING THE SAME PERIOD.

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ABSTRACT OF THE MEDICAL SCIENCES,

&c. &c.

PART I.

PRACTICAL MEDICINE, PATHOLOGY, AND THERAPEUTICS.

SECT. I.—GENERAL QUESTIONS IN MEDICINE.

(A) HYGIENE.

ART. 1.—*Investigation of Epidemics by Experiments.* By Dr. RICHARDSON.

(*British Med. Journal*, March 13, 1858.)

In this paper, which was read before the Epidemiological Society, March 1, 1858, Dr. Richardson commences by pointing out the weakness of the present system of epidemiological study, which sought after results by trying to descend from the general to the particular. This method lets pass simple laws, which lie at the root of all inquiries. It is painful to say as a fact, yet it is a fact proper to be said, that the researches at present so laboriously conducted do not lead to such proofs of unanimity or to such positiveness of science as might, on *a priori* reasoning, be expected from them. The present modes of research may bring out negatives. The present modes of research may bring partially accepted positives, i. e. sufficient of positive evidences to satisfy a section of men; but as yet they have failed to educe such demonstrations, that all who are educated to the same mark can read off the same phenomena by the same process of thought and inductive learning.

Dr. Richardson next proceeds to point out carefully such experiments as might be reasonably instituted for the purpose of investigating particular epidemic disorders, especially smallpox, scarlet fevers, and typhus; commenting also on the care which should be taken in the selection of the animal subjected to experiment, and showing, that in inquiries relating to the three special diseases named above, the pig is the animal to be selected, as one more easily susceptible of those diseases than other members of the inferior animal kingdom. Thence, leaving proposition for the history of experiment itself as a means of investigation, the author explains what in recent times had been done towards the production of some diseases artificially, and the information derivable from this form of investigation. He follows up this argument with a minutely recorded account of some experiments performed by himself, in which all the characteristics of typhus, symptomological and pathological, were produced by the introduction of alkalies into the system. He showed, further, that the typhous condition which could be induced by the injection of animal putrid matters was coincident with and dependent on the development of a superalkaline state of the blood; and he connects the pathology of "putrid fever," so called, with conditions analogous to those which had been thus artificially produced.

In a connected and simple mode of argument, the question is next put, Whether, when the virus of a disease is introduced into a healthy animal, so as to reproduce that disease, the symptoms and the pathological changes are due to an absolute reproduction of the virus itself, and to the actual presence of such virus; or whether the virus acted by setting up such new changes in the body that a product generated secondarily and differing in character from

the original poison, was the cause of the symptoms? He (Dr. Richardson) was inclined to the latter view, and gave some experimental evidence in support of his position. He admits, at the same time, that further experiment was required, and argues that, until this point was defined, no sound progress could be made in the study of epidemics.

It is impossible, in an abstract, to give more than the briefest outline of a communication written in so condensed a style, and opening up for consideration so many subjects, each differing in detail, yet having but one object. But the final propositions laid before the Society are as follows: That, by experiment, it might be ascertained:—

1. In what excreta the poisons of certain epidemic diseases are located.
2. By what surfaces of the body such poisons may be absorbed, so as to produce their specific effects.
3. Whether the virus of a disease, in reproducing its disease in a healthy body, acts in the development of the phenomena by which the disease is typified, primarily or secondarily; i. e., by its own reproduction and presence, or by the evolution of another and different principle or product.
4. Whether climate, season, and other external influences, modify the course of epidemics, by producing modifications of the epidemic poisons, or modifications in the system of persons exposed to the poisons.

ART. 2.—*On the Study of Epidemic Diseases, illustrated by the Pestilences of London.* By Dr. GREENHOW.

(*Lancet*, Nov. 28, 1857.)

In this paper, which was read before the Epidemiological Society, Nov. 2, 1857, Dr. Greenhow begins by stating that it is but an imperfect knowledge of any epidemic disease that can be acquired from its study, however careful, in a single visitation, or even in a succession of visitations in the same place. Perhaps even the study of a single form of epidemic disease would leave many points obscure which might be rendered clear by its comparison with other diseases of the same class. In the study of an epidemic visitation, it is further necessary to investigate the condition of the public health anterior to the outbreak, and to note whether this at once returns to its usual state afterwards. Many cosmical phenomena, the state of the weather, peculiarities of seasons, and other evident circumstances, will also deserve notice. Hence, likewise, it will be useful to inquire into the influence, if any, which these several circumstances have produced upon the lower forms of organized beings, and particularly upon domestic animals and cultivated vegetables. Epidemic diseases have varied greatly in type and character from century to century, and this very clearly not because they have been excluded by means of restrictive precautions, but because of some change unfavorable to their development in the *crisis* of the people, or in the conditions amidst which they exist. To these peculiarities, therefore, the student of epidemiological science must likewise direct his attention. Nor must the attention be exclusively devoted to these positive phenomena; many negative facts will also demand investigation. Thus the singular immunity from surrounding pestilence occasionally enjoyed by the inhabitants of particular districts, by particular races, or by particular classes of persons, well deserves consideration. Let us now proceed to illustrate these suggestions by a reference to the epidemics of London. These are evidently divisible into two classes, viz:—

1. Epidemics apparently depending upon some purely atmospheric influence, and which comprise the single form of febrile disorder so well known under the name of influenza.
2. Epidemic pestilences depending also in a great measure upon atmospheric influences, but requiring likewise some definite condition of persons or places, peculiar to each form, for their full development. Under this head will be included the black death, sweating sickness, plague, dysentery or alvine flux, and cholera, also a form of alvine flux. These epidemics have all been remarkable for their irregularly-periodical character and their successive appearance, each having been almost exclusively predominant for a certain time.

In studying the history of these pestilences, it is observable that they have all possessed certain common characters. Each has been attended by some peculiarity of season; and the prevalence of fog, haze, or mist, during the visitation, has been recorded in regard to most of them. Not the least important point in the history of London pestilences is the absence of pestilence during the eighteenth century and its reappearance in the nineteenth century; and this, notwithstanding a general improvement in the public health. The general death-rate of London, which is now 25 in the 1000, exceeded 35 in the 1000 a century since. It is not less interesting and remarkable that pestilence has now reappeared in exactly the same form in which it took leave of our forefathers, about the close of the seventeenth century. The cholera of our times, which has now, on three separate occasions, carried off some thousands of the inhabitants of London, is identical with the *dysenteria incruenta* of Willis, and the *diarrhœa colliquativa* of Morton, which, on many occasions, carried off in the autumns of the last quarter of the seventeenth century as many people from the then population of the metropolis as would be represented by the deaths of 11,000 or 12,000 persons in the present London. On one or two occasions, the deaths were so numerous as to be only duly represented by those of 18,000 or 20,000 persons in the present day.

It will be interesting here to pause for a brief space, and contrast the mortality caused by former pestilences with that produced by cholera in our own times. The means of accurately estimating the mortality caused by the black death and sweating sickness, do not exist; but there are reliable data from which the mortality of plague may be computed so as at least to approximate to truth. The plague visitation of 1625 raised the mortality of London for that year to more than five times the average amount; and the visitation of 1636 raised it to two-and-a-half times the death-loss of the ordinary healthy years of that period. Supposing the cholera visitations of 1849 and 1854 to have been equally fatal to the inhabitants of London, the deaths, which were 68,755 in 1849, and 73,697 in 1854, would have been 266,885 for the earlier, and 133,442 for the later outbreak. The total mortality of the last great plague year, that which immediately preceded the great fire, was little short of 100,000, whereof nearly 70,000 died of the pestilence. The general death-rate of London is now 25 in the 1000. The general death-rate of London in that calamitous year was 253 in 1000—that is, fully one fourth of the inhabitants were numbered with the dead. The plague death-rate (included in the general death-rate) was 178 in each thousand of the living. This was, however, very unequally distributed, the mortality being fearfully high, even when compared with this to us dreadful mortality, in some districts, and in others comparatively low. Sixty thousand deaths occurred in nine weeks. In the week ending September 19th, upwards of 8000 persons perished: 3000 of them in one night, which was probably the most fatal night that ever occurred in London. The cholera death-rates of our own day, alarming as they were at the time, sink into insignificance when contrasted with these death-losses of the seventeenth century. They are even insignificant when compared with the average death-rate of analogous disease at the close of that great epidemic epoch. The average annual death-rate of cholera, diarrhœa, and dysentery, for the ten years 1840–55, including the last two visitations of cholera, and all the years in which diarrhœa was most fatal, was 257 in the 100,000 persons. For the ten years, 1681–90, when the deaths from this class of diseases had already begun to decrease, the average annual death-rate from analogous diseases, was 477 in the 100,000 persons.

The apparently sudden outbreak of epidemic diseases is one of their commonest attributes, and has been often quoted as an argument in favor of their importation. This suddenness is, however, only apparent; for, with few exceptions, epidemic outbreaks have been preceded by sufficient indications of the existence of an epidemic constitution, tending towards, and more or less gradually passing into, the form of the approaching disease. Plague was preceded by pestilential fever, into which it again passed at its decline; and the visitation of cholera in 1832 was preceded by a distinct, although small, increase in the fatality from analogous affections in London. Forty-eight deaths from cholera morbus were recorded in the London bill of mortality for 1831, although the epidemic

form of cholera did not show itself until the early part of 1832. Thus it would appear that the magazine was ready prepared here, even if the spark which fired it came from abroad. Probably all the forms of pestilence to which the author has referred have been only malignant forms of diseases constantly present in London. Plague was not absent from London for twenty-five years anterior to the great fire. It even occasioned a very considerable mortality on many occasions that are not usually spoken of as pestilential periods. So likewise in our day do deaths from cholera, indistinguishable from epidemic cholera excepting for its less rapid course, annually occur, although, like plague, it only appears in its epidemic and pestilential character and more distant intervals. On this point, however, the author guards himself from misapprehension. He does not deny the importation of cholera any more than he denies the contagiousness of plague. The question must still be viewed as an unsettled one, requiring much careful inquiry for its elucidation.

The chief conclusion deducible from the facts here put together is, that of the several forms of epidemic disease which have at different periods visited London, influenza has maintained its precise character from century to century, because it is independent of the extrinsic condition of the population it attacks. Black death, sweating sickness, plague, and cholera, whether in the seventeenth or nineteenth century, have appeared in succession, and then disappeared because they have required for their development some definite but temporary condition, either of the human subject or of his place of abode. They have in turn appeared, and they have in succession departed from London, not because they have, at the one time, been imported with bales of cotton or by means of the sick, or, at the other, been effectually excluded by repressive precautions; but because at the one period the organic matter out of which plague or cholera is brewed abounded, and at the other period has been wanting. The exciter may, perhaps, have sometimes come to us over-sea, but it would have failed to light up the epidemic had it not here met with materials upon which it could react.

ART. 3.—*On the injurious Effects of Under-Ground Kitchens.* By Dr. FREDERICK J. BROWN, of Chatham.

(*Sanitary Review*, April, 1858.)

The darkness and damp inseparable from under-ground apartments, and the exhaustion occasioned to those who occupy such apartments by the frequent ascent and descent of stairs, are the reasons which Dr. Brown urges for using the basement-story for cellar-purposes simply, and not for kitchens.

"The servant-girls of London exemplify remarkably well these evil effects of damp; also the injurious results of deprivation of the solar rays. Their etiolated condition, and their breathlessness, show the anæmia (the impoverished state of blood) under which they suffer; and the functions peculiar to women are carried on imperfectly, or are absolutely suspended; hence the headache, the pains in the side, the palpitation, and the dropsical ankles, so frequently witnessed in this class. These circumstances are well known to the profession, and are especially familiar to those members who practise in the metropolis. Organic disease of the heart is originated by these causes in some instances.

"The unhealthiness of under-ground tenements is shown by the statistics of the city of Liverpool; the subterranean inhabitants being in a much worse sanitary condition than the supraterranean population.

"Thus, then, the effects of darkness are disease, and not merely delicacy of structure; and the morbid condition is aggravated by the damp that is associated with the darkness.

"The next consideration is the exhaustion attendant upon the frequent ascent and descent of stairs. The necessity of answering the front door, and of ascending to the upper part of the house in the performance of domestic duties, obliges the servant to undergo much fatigue in running up and down stairs. The carrying of a burden up stairs is attended by a very much greater expenditure of strength than is the case in carrying it along a level. Girls that are breathless, owing to their anæmic condition, and oftentimes dropsical about the ankles,

cannot afford the increased exertion that the circumstances necessitate; it is torture to them.

"The value of land in London causes houses to rise vertically rather than to increase in dimensions horizontally. The same reason, namely, high value of land, is slowly but surely operating on the style of building in country towns. It will inevitably, if persisted in, bring about an approximation in the death-standard between the towns of small size and the great urban populations of this country.

"It is the duty of physicians to point out the evil effects of subterranean apartments, and to impress upon the minds of builders, and upon the public generally, the injurious consequences of damp, dark kitchens, so placed that a multiplicity of stairs must be used in the performance of daily domestic duties.

"In provincial towns, the wives of artisans and others of the working classes, occupying houses with basement kitchens, suffer much from exhaustion due to the necessity of frequently ascending the stairs. A woman gets up from her confinement pale and weak, from want of generous living, and perhaps, also, blanched by hemorrhage; she is obliged to go up and down stairs some score of times in the day, and the consequence is a prolonged convalescence, with palpitation and other distressing symptoms, and sometimes even displacement of organs such as the womb.

"Besides these ill effects upon women, the children are apt to meet with accidental falls down the stairs, and to harass their mothers by the watching necessary to prevent such accidents. Darkness and damp produce unfavorable effects upon growing children; and scrofula, and rickets, and consumption, and swelled bellies, are the result.

"In the name, then, of humanity, let a stop be put to this sepulture of human beings, and to this treadmill exercise of women rendered weak and blanched by their premature interment."

ART. 4.—*On the Influence of Sewer Emanations.* By Dr. HERBERT BARKER.

(*Sanitary Review*, April, 1858.)

Dr. Herbert Barker has lately been making some inquiries as to the influence on the health of animals, of exposure for a long time to air rendered impure by the diffusion through it of emanations from sewers. The full details of these experiments are recorded in the essay "On Malaria," written for the Fothergillian Prize of the Medical Society of London for 1858; but, as the subject has important sanitary bearings, Dr. Barker has published in the "Sanitary Review" an outline of his researches.

The gaseous emanations from sewers have been subjected, to a certain extent, to chemical analysis. There have been thus detected in them sulphuretted hydrogen gas, sulphide of ammonium, carbonic acid, nitrogen, sometimes sulphuretted hydrogen, and various organic living products. Dr. Odling has recently pointed out the diffusion of an alkaline gas through sewer air.

For the purpose of experiment, Dr. Barker selected a large cesspool, which received, together with the animal excreta, the liquid refuse of an inhabited house. The cesspool was full, and had at all times so bad a smell, that during hot weather the vicinity was scarcely tolerable. The inhabitants of the house, however, had not for many years suffered from any epidemic; nor did the near presence of the sewer seem to affect their general health.

Dr. Barker had built, close by and nearly over the sewer, a small room. Two gutta-percha tubes, one inch in diameter, were carried down into the cesspool through its upper wall, and terminated in two large inverted funnels a few inches above the surface of the sewage matter. The other ends of the gutta-percha tubes were in the small room, and were so constructed that they could be opened or closed at pleasure. By a bellows attached to the free end of one or other of the tubes, he was enabled at any time to draw off the sewer air and subject it to examination. He did this on numerous occasions—at times when the weather was very hot and the neighborhood of the sewer most offensive—at times when the temperature was very low and the place inodorous. As

general rule, the sewer gas yielded neither acid nor alkaline reaction, but sometimes the reaction was alkaline. At all times, mixed with the common air, carbonic acid gas, sulphuretted hydrogen, or sulphide of ammonium, were detectable. When the reaction was alkaline, ammonia was evidenced. He could detect no other foreign products in the sewer air. He tested for evidence of cyanogen compounds, without any affirmative indication.

When this inquiry had progressed for several weeks, he tried the influence of sewer air on animals exposed to it for a long time. For this purpose, he had made a chamber of wood and glass, with a cubic measurement of 5832 cubic inches. One of the gutta-percha tubes was introduced into it at the lower part; from the upper part he carried a tube in the form of a small chimney. At the point where the long tube piping from the chamber made a right angle upwards, it expanded into a conical box, in which a lamp was placed, so as to create when alight a constant upward draught. The whole played well. When the chamber was closed and the lamp arranged, a current of the sewer air was kept steadily passing through it. Dr. Barker also attached a pair of bellows to the chamber, in such a way that he could at any time remove the air by working them, and subject it to investigation, without interfering either with the experiment which might be progressing. In the experiments to be related, the animals operated on were placed in the chamber, were fed by a funnel whenever necessary, and were subjected to the sewer gases as is now to be described.

EXPERIMENT 1.—Dr. Barker placed a young dog in the box at twelve o'clock noon, and kept a current of the cesspool air passing constantly through the chamber by means of the chimney draught. Half an hour after the exposure, he became very uneasy and restless; he vomited, and had a distinct rigor. In the course of the day he suffered from diarrhoea and tenesmus. After twelve hours' exposure, he was allowed fresh air; but on the next day, when he was removed altogether, he was exhausted. The diarrhoea and vomiting had ceased, but he refused food for some hours. However, he soon recovered.

The air breathed in the chamber by this animal yielded evidence of sulphuretted hydrogen.

EXPERIMENT 2.—On placing another dog in the box connected with the cesspool, and subjecting him to a free current of the foul air, similar results occurred. In ten minutes the creature became very uneasy, and soon afterwards suffered from vomiting and diarrhoea. After these effects, however, he suffered but very little, although kept in the chamber for five hours. After removal he quickly recovered.

EXPERIMENT 3.—A mouse placed in a cage was let down into the cesspool, to within three inches of the surface of the contained soil. The cesspool was freely open above, so that there was no exclusion of air. The animal was also well plied with food. After this exposure for four days, the animal seemed lively and well, and took his food heartily. On the next day he was found dead.

EXPERIMENT 4.—Another dog was subjected to the cesspool air during a period of twelve days, with such brief intermissions only as sufficed for rapid cleansing of the box. Throughout the time food was liberally supplied him. The results were as follows:—

During the first day the animal was restless and uneasy, and refused food. On the second day vomiting came on, and was repeated frequently during the day. In the afternoon there was diarrhoea, accompanied by thirst and restlessness. On the third day, in the morning, he had marked shiverings, and refused all food. The feet were somewhat swollen. Towards evening he slept, but had a peculiar kind of tremor with each inspiration. On the fourth day he took food, and drank some milk. He slept during the forenoon, but was restless towards evening. On the fifth and sixth days he was much the same. On the seventh day he was restless and relaxed, and ate no food. On the eighth day he ate but little food, and was restless; he was by this time thinner and feeble. On the ninth day he had eaten no food for two days, and seemed very ill and miserable. He was therefore taken from the box while it was cleansed, and offered food, which he ate voraciously and to repletion. When removed

from the box, his skin was preternaturally hot and dry; he was very weak, and his gait feeble. On the tenth day his appetite was better, but he vomited and had diarrhoea in the evening. On the eleventh day he was very restless, and had but little appetite; and on the twelfth, the symptoms being much the same, he was removed to his kennel. He walked feebly; but soon after his liberation ate heartily of food. He continued very thin and weak for six weeks after his removal from the cesspool air.

Having thus ascertained in some measure what was the effect of long exposure to the vitiated air of the cesspool, Dr. Barker subjected the animals in the same chamber to certain percentages of such of the individual gases as had been found at various times emanating from the cesspool.

Sulphuretted Hydrogen. EXPERIMENT 5.—Dr. Barker placed a puppy in the box as before, and introduced 100 cubic inches of sulphuretted hydrogen, or 1.714 per cent. The breathing became instantly labored. In two minutes the animal fell insensible on his side, and in another half minute he was dead without a struggle.

An hour after death, the right side of the heart was found filled with fluid blood to distension. In the left side the blood was partly coagulated. The fluid blood coagulated quickly when received into a glass. The corpuscles of the blood were natural. The lungs were congested in the lower lobes and posteriorly. Above, they were pale and free from congestion. The stomach and abdominal viscera were healthy. The vessels on the surface of the brain were slightly congested.

EXPERIMENT 6.—Dr. Barker placed a puppy in the box as before, and drove in twenty-five cubic inches of sulphuretted hydrogen, or 0.428 per cent. In three minutes the animal fell on his side insensible. In this condition he lay for an hour without any indication of pain, but with catching respiration. At the end of an hour he ceased to breathe.

Directly after death the lungs were found generally pale, and were free from congestion. The right side of the heart was filled to distension with blood. The left side contained fluid blood. Blood coagulated in eight minutes after being removed from the body. It was dark in both cavities, and the corpuscles were irregular. They floated about freely between the slips, but not one was natural. Some were crenated at the edges, and thus shrunken and broken up. The stomach presented nothing unnatural. The vessels of the brain were congested.

EXPERIMENT 7.—At thirty-seven minutes past 4 P. M., a dog was placed in the box, and twelve cubic inches of sulphuretted hydrogen gas, or 0.205 per cent., were slowly introduced. Within a minute he fell on his side, and was seized with tremors. The action of the heart became irregular, and within four minutes the respiration had apparently ceased. This cessation of respiration continued for about two minutes, when he began to breathe heavily. The respiration next became very quick and catching. Afterwards the quick respiration came on in paroxysms, with an occasional long-drawn inspiration. In three-quarters of an hour from the commencement, the respirations were 112 per minute, rising sometimes to 120; they then became deeply stertorous, as in apoplexy. Dr. Barker removed this dog from the box at fifteen minutes past six, having exposed him to the gas one hour and thirty-eight minutes. The respirations were at this time stertorous, the limbs were rigid, and the head was drawn backwards. The respiration became gradually more feeble and catching, as if solely diaphragmatic, with a kind of hiccup. The body was universally cold. The respiration then became very peculiar, consisting of two short inspirations to one expiration; and at fifteen minutes past 2 A. M. the dog died, nine hours and thirty-eight minutes after the commencement of the experiment.

On examination twenty hours after death, there was moderate cadaveric rigidity. The brain was found slightly congested externally, but presented no bloody points. The lungs were collapsed, dark in patches, and congested. The heart was enormously distended, and was remarkable for being excessively loaded with separations of fibrine. The right auricle, pulmonary artery, and the left auricle, were literally distended with fibrinous concretions, to the almost

entire exclusion of red blood. The right and left ventricles contained a large quantity of dark clotted blood, but there were some separations of fibrin in these cavities also. The fibrinous concretions in the right auricle and pulmonary artery were of pure whiteness. Those on the left side were red and striated, very closely resembling muscular fibre. The liver and spleen were congested. The kidneys were normal. The stomach, viewed externally, had a vascular appearance; but internally, the mucous surface was natural. There was no serous effusion into the abdominal cavity, nor any particular inflation of the alimentary canal with gaseous matters.

EXPERIMENT 8.—Another dog was put into the box, into which there were introduced twelve cubic inches of sulphuretted hydrogen, or 0.25 per cent. He suffered from violent tremors and shortness of breathing. When nearly an hour had elapsed, he appeared better, and was removed at the end of five hours, not laboring under any morbid symptom.

A jackdaw was placed in the chamber. Through the air of the box were diffused nine cubic inches of sulphuretted hydrogen, or 0.154 per cent. Within two minutes the bird essayed to vomit, and almost instantly afterwards was purged. He was incessantly restless, and the breathing was remarkably hurried and catching. After inhaling the gas for ten minutes, his movements became so feeble that it was with difficulty he stood. The pupils, at first contracted, soon became widely dilated. The beak was set widely open; and the tongue, dry and dark at the top, was protruded at each inspiration. After remaining in this condition for an hour and a half, he was removed from the box, and soon recovered.

A dog was placed in the box at 8 A. M., and nine cubic inches of sulphuretted hydrogen, or 0.154 per cent., were introduced. Within two minutes the respiration became quickened, with reeling. For a quarter of an hour he was restless, and walked with difficulty. His movements were very like those resulting from intoxication. This effect gradually subsided; and he was taken out of the chamber in three hours, merely enfeebled.

Another dog was placed in the chamber. When he was composed to his new situation, six cubic inches of sulphuretted hydrogen, or 0.102 per cent., were introduced. At first there was watering of the eyes, followed by signs of thirst, muscular debility, and slight drowsiness. In half an hour the breathing had become hurried, and an hour later he suffered from violent diarrhoea; the breathing became more rapid, and the tremors more intense. Three hours after his first introduction the respiration was still hurried, and the heart beat so rapidly that it could not be counted with precision. He was now again purged. Removed from the chamber, he soon recovered in the pure air.

Another jackdaw was put into the box as before, with six cubic inches of sulphuretted hydrogen, or 0.102 per cent. Within two minutes the bird commenced to vomit (a curious symptom to observe in birds), and he was also freely purged. The symptoms continued for twenty minutes; afterwards the respiration was very hurried. After keeping him in the box for two hours, without much further modification of symptoms, he was removed, and soon recovered.

EXPERIMENT 9.—A dog was introduced into the box as before, and three cubic inches of sulphuretted hydrogen, or 0.056 per cent., were driven in. He suffered almost at once from tremors of the muscles. The respiration was also quickened, and the heart-beat was extraordinarily rapid. At the same time he seemed sufficiently lively. After keeping him in the box for two hours, he was let out. The pulsations of the heart could be heard at a short distance from his body, the action was so intense. After removal, he was freely purged for a few hours, but eventually got quite well.

Sulphide of Ammonium.—This was diffused in vapor from its solution into the chamber in each experiment.

EXPERIMENT 10.—A large dog was placed in the box, and six drachms of sulphide of ammonium were introduced. He soon suffered from lachrymation, restlessness, and vomiting. The vomited matters gave off copious white fumes. There was a peculiar harsh noise during expiration. In five hours he had recovered, and was then removed.

EXPERIMENT 11.—A dog was placed in the box, and half an ounce of sulphide of ammonium. For ten minutes he labored under excitement with lachrymation. He also had some tremor and tenesmus. The symptoms subsided, and he was removed from the box in five hours.

EXPERIMENT 12.—A jackdaw was placed in the box, and half an ounce of sulphide of ammonium was introduced. The bird vomited, and the vomited matters were of a yellow color; the beak was separated; the tongue was dry and dark colored at the top. He was much purged, and the ejected matters were liquid. He expanded both his wings to support his body. The respiration became quicker, and he died in two hours.

After death the blood remained fluid; the lungs were congested; the brain was congested. The other viscera were healthy.

EXPERIMENT 13.—Dr. Barker placed a dog in the box with one ounce of sulphide of ammonium. He soon labored under profuse lachrymation and salivation, and became very restless. Within five minutes tenesmus showed itself. The respiration became hurried and difficult. He died within ten minutes.

Twenty-four hours after death the right auricle and ventricle were found filled with quite liquid blood. The left cavities contained a small quantity of fluid blood. The venæ cavae were distended with fluid blood. Both lungs were deeply congested, and of a dark color. The vessels of the brain were congested. The stomach was distended with food and an offensive gas. It presented a reddened appearance of the mucous surfaces. The other viscera were of healthy appearance.

Carbonic Acid. **EXPERIMENT 14.**—A hedgehog was placed in the box, and 88 cubic inches ($1\frac{1}{2}$ per cent.) of carbonic acid were introduced. For a quarter of an hour he remained curled up; he then breathed more quickly—sometimes irregularly, and occasionally drew a long inspiration. Soon afterwards he was very restless—running about and trying to escape. He was also freely purged. He became quieter afterwards, and was removed in four hours and a half, upon which he recovered.

Dr. Barker made afterwards several experiments with carbonic acid gas, exposing the animals subjected to experiment to 5, $2\frac{1}{2}$, and $1\frac{1}{2}$ per cent. of that gas. The effects were mainly referable to impeded respiration, but in one instance diarrhœa was the result.

REMARKS.—These experiments have brought before us the effects of the compound impure cesspool atmosphere: and they have shown the specific influence of certain particular gaseous poisons, which alone, or in company, emanate from the cesspool, and the decomposing vegetable heap, to pollute filthy localities.

1. In the first place it cannot be doubted that cesspool emanations are, when steadily inhaled, poisonous. The dogs subjected to the cesspool air were all more or less affected. The symptoms were those of intestinal derangement followed by prostration, heat of the surface of the body, distaste for food, and those general signs which mark the milder forms of continued fever common to the dirty and ill ventilated homes of the lower classes of men.

2. The peculiar poisonous action of sulphuretted hydrogen is well illustrated in these experiments. The symptoms produced even by the same dose differed in degree in different animals of the same class, the one animal dying from the effects of a dose which was insufficient to do more in the other than produce dangerous symptoms.

The symptoms arising from sulphuretted hydrogen are well marked, and may be considered specific. Vomiting and diarrhœa are the first and most prominent symptoms. The latter is painful; the vomiting is difficult and exhausting, and eventually there is insensibility and entire prostration. When the dose of the poison is at first very large, the prostration and the insensibility are immediate.

The pathology following such poisoning is definite. If the death takes place quickly, the pathological evidence is the evidence of asphyxia; if the poison is long breathed in diluted doses, the pathology is modified, the fibrin of the blood is separated, and the heart is slowly clogged up with fibrinous depositions.

The dose of sulphuretted hydrogen required for the production of the specific symptoms is tolerably well shown. It is clear that so little as 0.428 per cent. is a dose absolutely and rapidly poisonous; that so little as 0.205 per cent. may be fatal; and lastly, that so minute a dose as 0.056 per cent. is sufficient to produce serious symptoms, eructations, tremors, rapid and irregular respiration, extraordinary rapidity of the pulse, and diarrhoea.

3. The effects of sulphide of ammonium, while they differ from those produced by sulphuretted hydrogen, are in themselves sufficiently distinct. Vomiting is a symptom of this poison, without purging, but occasionally with tenesmus. When the dose is very large, death occurs speedily, with quickened and labored respiration. When the administration is kept up in small doses for many hours, the symptoms are those of excited circulation and thirst, followed by rapid sinking. The surface of the body, from being unusually hot, becomes unusually cold. The tongue is protruded, dark, dry, and cold. There are constant jactitation of the limbs, subsultus tendinum, feeble, quick pulse, and ultimately death, which may occur even some hours after the animal has been removed from the poison and placed in the open air.

The pathology after death from sulphide of ammonium differs from that which follows the administration of sulphuretted hydrogen. When the exhalation is prolonged, and the death is gradual, the alimentary mucous surface is changed. The mucous coat is injected and softened in patches. The blood shows no fibrinous separations, but is dark, and either feebly coagulated or entirely fluid. The blood-corpuscles are also much dissolved and changed, and there is congestion of fluid blood in all the vascular organs.

The dose of sulphide of ammonium required for the production of serious symptoms is difficult to calculate; and this, from the fact that when the vapor of sulphide is diffused through a confined space, in which an animal is breathing, there is quickly a deposit on the floor of the chamber of the white bicarbonate of ammonia. This deposition is so rapid, indeed, that the effect of the poison is very quickly lost, so that constant renewal is required, and the calculation of dose is necessarily rendered obscure, since the animal is not breathing the same dose for any two minutes together.

4. In poisoning by carbonic acid gas, the respiration suffers first; there is prostration, and, if the inhalation is prolonged, diarrhoea. The effects vary with the dose; the instances given above are the effects of a small, long-continued dose. In larger proportions, insensibility, coma, and asphyxia are the results.

The pathology varies. While congestion of the lungs is commonly noted as the leading pathological sign, it is clear that when the gas has been long inhaled in small quantities, this rule is not without its exception; for, in one case, the lungs were found of brilliant vermilion color, and free from congestion.

The effect of carbonic acid gas on the blood is definite; it does not produce the fibrin deposit like sulphuretted hydrogen, nor the complete fluidity of sulphide of ammonium. But there is feeble coagulation, and sometimes a dark color even in the arterial blood. If this gas be breathed continuously for a long time in a very minute dose, the brain suffers from congestion of blood, and the mucous membrane of the stomach is injected and reddened.

When the gas has been breathed for a long time in small quantities, so as not to produce insensibility, the effect does not pass off so speedily on placing the animal in the open air as is generally believed. In one experiment with carbonic acid, the animal, after being exposed for two hours to an atmosphere in which he breathed from the first two per cent. of carbonic acid, was left (not apparently suffering much) with pure air entering freely into his chamber. Yet he died after all.

The smallest dose of carbonic acid required to produce dangerous symptoms cannot be determined absolutely from the experiment of placing an animal in a closed chamber and introducing the gas, inasmuch as the gas is also streaming off from the animal itself. Dr. Barker thinks, however, that the inference is quite fair, that from one to two per cent. of this gas is sufficient, when long inhaled, to produce decided symptoms of imperfect oxidation of the blood,

and all the after prostration incident to such interference with the primary act and principle of life.

The symptoms which have thus been noticed as resulting from the inhalation of sulphuretted hydrogen, sulphide of ammonium, and carbonic acid, are sufficient to account for the effects arising from cesspool effluvia, without seeking for any further product from such emanations. Comparing the experiments with cesspool air with those in which separate gases were employed, the inference seems clear, that the symptoms arising from the inhalation of the cesspool atmosphere were due mainly to the presence of a small amount of sulphuretted hydrogen, which gas was always present. If the experiments with the cesspool air be placed side by side with those in which sulphuretted hydrogen, in the proportion of 0.056 per cent., was administered by inhalation, the analogy between the two sets of results will be sufficiently unmistakable.

ART. 5.—*On Drainage and Water-Supply in connection with Public Health.*
By Dr. SNOW.

(*British Med. Journal*, Feb. 20, 1858.)

In a paper read before the Epidemiological Society, February 10th, 1858, Dr. SNOW said, that the increasing use of water-closets had a tendency to pollute the rivers of the country more and more; and a still greater evil attending the general adoption of water-closets was, that they caused the demand for such an enormous quantity of water, that the springs and wells did not suffice, and the polluted rivers had generally to be resorted to for the supply; whilst the sewage was diluted to such a great extent that it was impracticable to apply it profitably as liquid manure. It was the author's opinion, that the absence of drainage, and its defective condition, were injurious to health only by the contamination they caused to pump-wells and other supplies of water; and that, when the health of the community was improved by improved drainage, either in town or country, it was by the amendment which was effected in the drinking water of the locality. He believed, also, that a gravel soil was more salubrious than clay, because organic matters were usually oxydized in passing through the gravel, before reaching the pump-wells. He considered that the opinion was erroneous which attributed the illness caused by absence or imperfection of drainage to effluvia given off into the air. Whenever he had been able to separate the effluvia from real causes of disease, he had found an absence of effect. The Fleet Ditch, when open, did not cause an increase of cholera in its neighborhood; for the returns of the Registrar-General showed a very low mortality in the subdistrict through which it flowed. A statistical inquiry was made into the effects of the tidal ditches about Jacob's Island, Bermondsey, in the cholera of 1849; and it was found that the mortality was only increased among the people who drank the water of these ditches. Mr. Glaisher had attributed to the effluvia from the Thames an aggravation of the cholera in 1854; but the seven river-side subdistricts supplied by the New River Water Company had every one of them a low mortality from this complaint; taking them altogether, the mortality was only half that of the whole metropolis. One or two subdistricts, situated by the south side of the Thames, but supplied chiefly with water from Thames Ditton, had also a very low mortality; whilst districts at a distance from the river, but supplied with impure water, had a high mortality. The fact that persons who worked amongst grease, bones, skins, and intestines, enjoyed a longer average duration of life than the rest of the population, also strengthened the position that it was not by offensive effluvia that bad drainage was injurious.

Dr. SNOW had in previous papers been able to show the great influence of the supply of impure water on the prevalence and mortality of cholera. He was now able to show, from tables compiled and calculated from the returns of the Registrar-General, that the nature of the water-supply had a notable effect on the mortality in times when cholera was not present. That part of London which is situated in the county of Surrey is supplied by two water companies. Formerly, the water of both of these companies was polluted with the sewerage of London; and the mortality of the districts they supplied was

greatly above that of the rest of the metropolis. One of these companies changed its source of supply to Thames Ditton, in the beginning of 1852; and immediately the relative predominance of the mortality of the districts it supplied was diminished. In July, 1855, the other company also changed its source of supply to near Hampton: and in that very quarter the mortality of that part of London situated in the county of Surrey fell for the first time below that of the rest of the metropolis, and has remained so ever since. He had not the means of ascertaining all the diseases which were diminished by the improvement in the water-supply; but he found from the weekly returns of the Registrar-General, that the mortality of diarrhoea and typhus was greatly lessened.

The author recommended iron tanks, of uniform size, charged with some deodorising substance, as a substitute for water closets; the tanks when full, to be replaced by empty ones. The water-supply of towns should be from springs or deep wells at a distance. The shallow pump-wells in towns should be closed for domestic use; and in country places where pump-water must be used, the wells should not be sunk near the houses.

The part of the Thames which at present most concerned the public health was that near Hampton and Thames Ditton; that part situated in London being never in a better condition, in a sanitary point of view, as hardly anybody ever used the water, except a portion of the population on board ship. The question of diverting the sewage of London from the river he considered to be one of taste, and he would not attempt to decide whether it would be worth the cost.

(B) ACUTE DISEASES.

ART. 6.—*Contributions to the Etiology of Continued Fever; or, an investigation of various causes which influence the prevalence and mortality of its different forms.*
By CHARLES MURCHISON, M. D., L. R. C. P., Assistant-Physician to King's College Hospital and to the London Fever Hospital.

(*Proceedings of Royal Med. and Chir. Society*, vol. ii. No. 1, 1858.)

The subject of this paper is an investigation into the various causes which influence the prevalence and mortality of the different forms of continued fever. The materials consist principally of an analysis of 6628 cases of continued fever which had been admitted into the London Fever Hospital in the ten years during which the distinctions had been recorded between typhus, typhoid, relapsing fever and febricula. The results thus arrived at are compared with the statistical data which the author had obtained from many of the principal hospitals in England, Scotland, and Ireland, and from various published records. The subject is discussed under the following heads.

A. *Prevalence of continued fever.*

I. The various epidemics of continued fever which have prevailed in Great Britain and Ireland during the present century.

II. Which are the forms of continued fever of which these great epidemics have been composed?

III. The influence of months and seasons of the year on the prevalence of the different forms of continued fever.

IV. The influence of sex.

V. The influence of age, as shown by a calculation of the mean age of each of the different forms of fever, and by ascertaining the number of cases in each quinquennial period of life.

VI. The influence of occupation and station in life on the prevalence of the different forms of fever.

VII. The localities of London in which each form of fever is most prevalent, as shown by the localities from which the 6628 cases admitted into the London Fever Hospital had been derived.

VIII. Overcrowding, with deficient ventilation, and destitution as causes of fever.

IX. Putrid emanations from decomposing organic matter in drains, cess-pools, churchyards, &c., and organic impurities in drinking-water.

X. The contagiousness of the different forms of fever.

XI. The influence of recency of residence in large towns as a predisposing cause of fever.

B. Mortality from continued fever.

I. The rate of mortality from fever in the London Fever Hospital, as compared with that of eleven other hospitals.

II. The rate of mortality in the different forms of fever.

III. The influence of months and seasons of the year on the mortality of the different forms of fever.

IV. The influence of sex.

V. The influence of age.

VI. The influence of station in life.

VII. The influence of recency of residence in large towns.

The paper terminated with the following conclusions:—

1. Typhus and relapsing fever occur at irregular intervals, and often simultaneously, as wide-spread epidemics. They then gradually disappear, and both of them, but especially the latter, may be absent for years from those places where, during the epidemics, they are usually the most prevalent.

2. Typhoid fever does not occur in such wide-spread epidemics. In certain places it is never absent, and its prevalence varies but little from year to year. When outbreaks of it occur in other situations, these are always of the most local and circumscribed character.

3. Typhus and relapsing fever are quite independent of the season of the year; whereas typhoid fever is almost invariably most prevalent during the autumn, and it has been observed to be especially prevalent in seasons remarkable for their high temperature.

4. Sex has no influence over the prevalence of continued fever, nor over that of any of its forms.

5. Typhoid fever is pre-eminently a disease of childhood and adolescence, at which periods of life we know that there is a marked proneness to enteric affections. Less than one seventh of the cases of typhoid fever are above thirty years of age. Typhus and relapsing fever exhibit no such predilection for youth. Of typhus, one-half, and of relapsing fever, one-third, of the cases are above thirty.

6. Typhus and relapsing fever are the appanage of poverty and destitution, and seldom or never occur amongst the wealthy, except from direct contagion. Typhoid fever attacks both poor and rich without distinction.

7. In large cities, typhus and relapsing fever are for the most part limited to those localities remarkable for the overcrowding of their inhabitants; and in country districts they are seldom or never met with, except when directly imported. Typhoid, on the other hand, occurs alike in the centre and suburbs of cities, in the crowded hovels of the poor, and in the spacious mansions of the rich, and also in isolated houses and hamlets in the country, without any traceable sources of contagion.

8. When fever breaks out in a house or locality, it seldom or never happens that some of the cases are typhus and others typhoid; but typhus and relapsing fever occur not unfrequently together.

9. Cases of what has been called "febricula" may coexist along with any of the three other forms, but especially with typhus and relapsing fever. Most of them are either mild varieties of some of these, or dependent upon some derangement of digestion, or other non-specific causes.

10. Overcrowding and destitution appear to be the essential causes of typhus and relapsing fever, and to be capable of generating them *de novo*; while there is no evidence that they have any such influence over the production of typhoid fever.

11. There are many circumstances which tend to the belief that the emanations from decaying organic matter, or organic impurities in drinking water, or both of these causes combined, are capable of generating typhoid fever; but

there is no authenticated evidence whatever to prove that such causes can give rise to typhus or relapsing fever.

12. There are some grounds for believing that a combination of the causes mentioned in the last two paragraphs may occasionally, although very rarely, generate a disease intermediate in its character between typhus and typhoid, or may (to speak perhaps more correctly) cause typhoid fever to assume some of the characters of typhus; but such cases cannot be used as an argument in favor of the identity of the poisons of the two diseases, for, first, instances are not wanting of two of the exanthemata coexisting in the same individual; and, secondly, if a known poison generates one train of symptoms, and a second poison another, a combination of the two poisons will generate a combination of the two trains of symptoms, without its being warrantable to conclude that the poisons in the first two instances were identical.

13. Typhus is eminently contagious. Typhoid fever is also contagious, but in a more limited degree, and possibly through a different medium. Again, typhus has in no instance been proved to communicate typhoid, nor typhoid to communicate typhus. An attack of either confers an immunity from future attacks of itself, but not of the other.

14. Recency of residence increases the liability to typhoid; scarcely, if at all, that to typhus.

15. The great majority of the cases of relapsing fever have been Irish, and of these a large proportion had but recently arrived in London. There seems reason for believing that fever imported from Ireland as "relapsing" may gradually pass into typhus.

16. Relapsing fever offers a marked contrast to typhus and typhoid in the small mortality which it occasions.

17. In comparing the mortality from continued fever at different times and places, it is essential to take into consideration the form of fever which has prevailed. If this be not done, the comparison is valueless.

18. The small mortality from continued fever constantly observed in Ireland, along with other circumstances, renders it probable that in that country a fever more or less allied to the relapsing, or to febricula, is more common than in Britain.

19. Season of the year has no influence over the mortality of any of the forms of fever.

20. In all of the fevers there is not much difference in the mortality of the two sexes.

21. Typhus is least fatal between the ages of ten and twenty, the mortality at that period of life being under five per cent. Above twenty, the mortality increases with the age, until of those above fifty considerably more than one-half die. The mortality from relapsing fever appears to be influenced by age in a similar manner. In typhoid fever, on the other hand, in no period of life is the mortality under 12½ per cent.; and although, as in typhus, the rate of mortality increases with the age, it does so in a less degree.

22. The mortality from typhus is greater amongst the very poor than amongst those in better circumstances. Typhoid fever is equally mortal in all classes.

23. Recency of residence increases the mortality from, as well as the liability to, typhoid fever, but has no such influence over typhus.

24. Typhus and relapsing fever are strongly assimilated in the causes which give rise to them, if the specific poison of the two be not actually the same. Typhoid fever, on the contrary, appears to be a perfectly distinct affection, dependent upon totally different causes.

25. The facts which have been adduced in reference to the mode of origin of the different forms of fever deserve the serious attention of those intrusted with the care of the public health, for it is manifest, that should they be confirmed by subsequent observation, they must have an important bearing on the subject of hygiene.

ART. 7.—*On the Eruption of Scarlatina.* By Prof. TROUSSEAU.

(*Gaz. des Hôpitaux*, No. 86, 1857; and *Med. Times and Gaz.*, April 17, 1858.)

The eruption appears in some patients four or five hours after the fever of invasion has set in, and does so very rarely after the first day. The cases in which the eruption is said to appear only on the third day must be quite exceptional, and are mostly to be explained by the defective examination of the practitioner and friends. It is generally on the face that we seek for the first manifestation of an eruption, and it is there we find it in rubeola or variola; but in scarlatina we should search for the earliest traces on the trunk, the belly, and bend of the thigh. It may be found there thirty-six hours before it exhibits itself upon the face and neck, and hence a cause of error in the date of its appearance.

The duration of the eruption is very uncertain, bearing, in this respect, no analogy to that of variola and rubeola. Commencing on the first day, it may still be very vivid on the twelfth or fourteenth, although generally it becomes paler towards the eighth or ninth. In simple cases it lasts five or six days only. It is by no means so uniform and constant in character as represented in books. When severe and confluent it has the appearance of a tincture applied to the whole surface, but in the more simple cases it consists in a multitude of minute, round, red points, completely separated from each other, and differing entirely from the spots in measles. The peculiar red rash of scarlatina is also accompanied by a miliary eruption, which, even when not visible to the naked eye, feels to the touch like shagreen. It consists in minute vesicles, which in thirty-six or forty-eight hours become filled with a lactescent fluid, and is very seldom absent in confluent scarlatina. If we examine a scarlatina eruption with a magnifying glass, we may be easily convinced it is not of one uniform color as in erysipelas, but consists in elevations that resemble an excessively close eczema.

It is the tongue, however, which presents the most specific appearance in scarlatina, and is, perhaps, as special as is the eruption in variola. The first day there is nothing peculiar about it, but the next, if the patient has been sick, it is of a deep green or yellow color, the point and edges being of an excessively bright red. When there has been no vomiting, it is of a milky white at its posterior part. Towards the third day the redness still further increases, and from the fourth to the fifth all the pasty appearance disappears. The tongue, now of a scarlet red, is swollen, painful, covered with projecting papillae, and peels by friction. Towards the seventh or eighth day it becomes smoother but preserves its redness. By the ninth day the epithelium becomes evidently reproduced, but the tongue scarcely recovers its normal appearance before the twelfth day.

M. Trousseau protests against the doctrine usually laid down, that, when the eruption is vivid and comes out well, the patient runs less risk of suffering from the various morbid phenomena. On the contrary, he declares it to be a law in scarlatina as in variola that the gravity of the case is in direct proportion to the intensity of the eruption. In distinct variola life is in as little danger as in scarlatina with slight eruption; and the issue of a confluent variola is surrounded by as many perils as is that of a confluent scarlatina, in which the entire skin is of a vivid red. The more intense the eruption, the more serious are the symptoms, and the more guarded should be the prognosis.

ART. 8.—*On Amyloid Degeneration of the Liver in Yellow Fever.*

By Dr. SAMUEL JACKSON.

(*American Journal of Medical Science*, Oct., 1857.)

The existence of an amyloid substance was demonstrated by Virchow and Bennett to be the peculiar anatomical alteration of the liver, in many cases designated as waxy or fatty; and Professor Jackson some time since suggested that the peculiar appearance of the liver in yellow fever, supposed to be fatty degeneration, might possibly be owing to a similar modification. Professor

Jones, of Savannah, has since then examined several of these livers, and found that they contained a substance which gave reactions similar in all respects to cellulose, and presented under the microscope an appearance like the granules of starch. Dr. Jones also endeavored to make gun-cotton from the yellow fever liver, but without success. M. Pelouze has, however, since shown that the glucogenic matter of the liver can, under the influence of fuming nitric acid, be transformed into xyloidine like starch. M. Claude Bernard had already shown that sugar is not an immediate product of the liver derived from any element of the blood; but that it is constantly preceded by the creation of a special matter, capable of generating sugar by a sort of secondary fermentation. This glucogenic or sugar-forming matter, obtained separately, possesses all the characters of hydrated starch.

Assuming as correct the discovery of Bernard, the mechanism or process of the anatomical modification of the liver in yellow fever becomes apparent. The yellow-fever poison, introduced into the blood, vitiates its characters, properties, relations, and modes of action in the organism. All its functions are at first perverted, and ultimately, if the dose be powerful, are suspended or destroyed. The fermentative power of the blood being more or less impaired, and finally destroyed, the transformation of the amyloid substance into sugar is imperfect, or is not accomplished; the secretion of bile is at the same time arrested, and in consequence the amyloid element of the liver assumes an undue proportion in its structural composition. The peculiar character of the liver in yellow fever was first distinctly announced by M. Louis, as observed by him at Gibraltar. It has usually been supposed to be a form of fatty degeneration, though no regular and sustained chemical analysis, that I am aware of, ever demonstrated the fact.

ART. 9.—*Epidemic Fever characterized by mild Erythematic Pharyngitis.*
By Dr. ROCHESTER.

(*Buffalo Med. Journal*, May, 1857; and *North American Med. Chir. Review*, March, 1858.)

During the months of January, February, and March, 1857, there prevailed in the city of Buffalo and its vicinity a form of fever accompanied by mild pharyngitis, having a career of from three to five days, and generally, if not invariably, ending in convalescence. In a report made to the Buffalo Medical Association by Dr. Rochester, the results of an analysis of twenty-three recorded cases coming under his own observation were given, and the question of the identity of the disease with scarlatina discussed. From the results of the analysis, the following deductions were drawn by the reporter: "The disease was an epidemic fever, characterized by mild erythematic inflammation of the fauces as a constant local complication. Its character as essentially a fever is established by the febrile movement being in so marked a degree out of proportion to the local affection—in other words, evidently not being symptomatic of the latter—and by its running a definite although a brief career. It is a fever of from three to seven days' duration. Its epidemic character is sufficiently apparent. It has prevailed more or less extensively in the city for about two months, reaching its acme gradually, declining gradually, and at length disappearing, affecting both sexes and different ages without notable discrimination. As an epidemic fever, its symptomatic features were very uniform. The erythematous affection of the fauces constitutes the only positive character, aside from the brief duration of the febrile career. The other symptoms uniformly present were only those incident to febrile movement; and the symptoms observed in a few cases—viz., the convulsions in one case, the retraction of the head in one case, &c.—were only incidental events, not intrinsic elements of the disease. The small patches of white exudation observed in some of the cases do not suffice to establish any relation of the local affection to that called *diphtheritic* by Bretonneau and others. The occurrence of several cases repeatedly in the same family does not suffice to prove that the disease was propagated by contagion, since this fact is explicable on the supposition of the patients being equally exposed to an epidemic influence,

and there being a marked discrepancy in the intervals separating the cases necessarily occurring in the same family.

The disease was considered as a species of fever distinct from scarlatina, on the following grounds: 1. The uniform absence of the scarlatinous eruption on the exterior surface. 2. The uniform absence of any connection with well-marked cases of scarlatina, occurring either previously or subsequently. In no instance was the disease preceded or followed by scarlatina in the same family. 3. Several of the persons affected being adults and persons beyond middle life. 4. Medicine was in no instance followed by the sequels of scarlatina—viz., rheumatism, serous inflammation, and especially dropsy. 5. In several instances the persons affected had had scarlatina.

Dr. Rochester at the same time made a report on the same subject. Between January 6th and April 4th he had noted thirty-seven cases. In many instances he had been led to observe irregular intermittency in the febrile movement. The subjects in ten cases were of all ages and conditions. He regards the communicability of the disease as probable. If communicable, the period of incubation is short, the disease manifesting itself in some instances within twenty-four hours after exposure. In many cases the patients had had scarlatina. Two children who were very ill with scarlatina had this form of fever a month after their recovery.

ART. 10.—*Acute Rheumatism treated by large Doses of Opium.* By Dr. SIBSON, Physician to St. Mary's Hospital.

(*British Med. Journal*, Nov. 21, and Dec. 5, 1867.)

In this paper Mr. Hart, House-Surgeon at St. Mary's Hospital, relates 26 cases occurring in Dr. Sibson's wards during the last three years, which show the extraordinary tolerance of opium displayed by patients suffering from acute rheumatism. We see hardly anything of drowsiness, of tendency to coma, of constipation or contracted pupils; only, when the remedy is pushed to its extreme point, delirium comes on, which speedily subsides on the diminution of the dose. In some cases it will be observed that, so far from constipation being produced by the opium, the patient actually suffered from diarrhoea during the opium treatment. In most of the cases an improvement is reported in the patient's sleep; but this never proceeded to the extent of narcotism. The pain, as might naturally have been expected, was in all cases much relieved; but any idea which has been entertained of the prophylactic virtue of large doses of opium against affection of the heart in rheumatism must, we think, be negatived by the table before us, by which it will be seen that, excluding the cases in which the heart was affected before the treatment was commenced, a proportion quite as large as the average suffered from cardiac affection while under the opium treatment. No evidence is contained in the above table as to immunity from relapses which may be afforded by the treatment. It is curious, however, to observe that the only case which is known to have relapsed (No. 20), was one in which the treatment was abandoned in two days, on account of chest affection. The patient was again under Dr. Sibson's care, and was treated on the narcotic plan; but the notes were not preserved.

With reference to the administration of other remedies, it seems that the opium does not materially interfere with their action; but on this point we are perhaps hardly competent to pronounce an opinion, not having had the opportunity of following the cases themselves. The time during which the patients remained in the hospital does not seem to have been much shorter than under other plans of treatment; but their condition during this time appears to have been more tolerable, their convalescence less protracted, and the cardiac mischief, where present, was in most cases either nearly or entirely repaired before the discharge of the patient.

CASE 1.—George W—, æt. 30, was admitted on September 12th, and discharged convalescent on November 20th. He had had two previous attacks of acute rheumatism, but without, as it seemed, any cardiac symptoms. The present attack had lasted two months, during which time he had been confined to bed, and treated apparently with purgatives and Dover's powder. The pain

had been extreme, especially in the knees and feet. This, however, had somewhat mitigated at the time of his admission. He was treated principally by means of iodide of potassium, and continued to improve for a few days.

September 21st.—The acute pain returned in the knees and in the metacarpophalangeal joints. He was sleepless; the urine deposited a copious sediment of lithates; the joints were affected, very red and tender. He was ordered to have a grain of opium, and two grains of ipecacuanha every two hours. He passed a restless night, but on the following afternoon had come under the influence of the opium, and had many hours of sound sleep. Next morning, when he awoke, the pain was undiminished, and the effusion greater; the tongue brown and dry; great thirst; much acidity of the urine, and perspiration. The pills were resumed; a mixture, with bicarbonate of potash, nitric ether and hyoscyamus, was ordered, and mercurial ointment rubbed into the knees.

24th.—The pains were much relieved, and continued to be of a slight nature till October 3d; when, as they had recurred with sufficient violence to keep him from sleeping, he was ordered to take two grains of opium at bedtime, and a grain of opium and half a grain of extract of colocynth every two hours. This was persevered in till October 7th; when, as the pain was not relieved, three grains of opium, instead of two, were given at night. During this time he slept frequently, but only for short periods. The tongue was dry and brown, and he was weak and anxious.

October 10th.—The pain was somewhat relieved, and the effusion into the knee-joints much lessened.

14th.—He was ordered iodide of potassium, and potassio-tartrate of iron, of each six grains three times a day. The opium was continued, and increased next day, so that he took ten grains of opium on the 15th, and eight on the 16th. Notwithstanding this large dose the tongue was clean, and no symptom of narcotism, except drowsiness and dulness of manner, was present.

17th.—The pain and effusion were sufficiently relieved for him to be allowed to leave his bed; but the pain soon recurred, and the opium treatment was continued; it did not affect his appetite, nor did he sleep more than natural.

30th.—As the left knee and shoulders had become more painful, the pill was given every hour. He thus took on that day seven grains of opium in as many hours; nineteen on the 31st; fifteen on November 1st; thirteen on the 2d; and ten on the 3d. The opium was admitted next day, when he had lost his pain, and could move his shoulders without difficulty. From this time he continued to mend, and was discharged convalescent a fortnight afterwards.

CASE 2.—George W—, æt. 17, a baker, a healthy lad, was admitted on October 6th, and discharged cured on November 16th, with acute rheumatism of about a week's duration; the first attack, in the legs, arms, and shoulders. The pains were rather severe, and there was great tenderness, but not much swelling. He had a little difficulty of breathing, and the heart's sounds were diffused; otherwise there was nothing unnatural about the chest.

October 7th.—He was ordered to take a grain of opium, and half a grain of extract of colocynth every hour, and this was continued till, on the 8th, he had been brought well under the influence of the drug, when the pills were omitted for the present. In the afternoon, as the effect of the narcotic had passed off, he was restless, and complained of increased pain; the pills were again ordered every hour.

9th.—Symptoms of cardiac affection appeared, and a creaking sound could be produced over the præcordial region by pressure. Leeches were applied. The evidences of extensive pericarditis became more distinct during the next few days. The opium treatment was now pressed vigorously, so that in the eleven days, October 11th to 21st inclusive, he took the extraordinary quantity of 166 grains of solid opium. The treatment was continued one day longer, but the quantity on that day is not noted. It would be tedious to give the symptoms of the disease from day to day. Suffice it to say that the signs of inflammation of both the pericardium and endocardium were distinct; and there was at one time evidence of pleural effusion. The effect of the opium was shown from time to time in contraction of the pupil and drowsiness; the appe-

tite was generally good; the tongue clean; perspiration free; and there was no complaint of constipation. The friction sound soon disappeared; but the endocardial bruit remained, though much weaker, and evidently receding, up to the time of his discharge. This took place one month after his admission, and somewhat less than six weeks after the commencement of the disease. He was then in perfect health (though rather feeble), except for the state of the heart above indicated.

CASE 3.—William R—, æt. 39, a barman, was admitted on October 27th, and discharged cured on December 15th. He had been laboring under acute rheumatism for about a fortnight. The pain was severe in the knees, shoulders, and knuckles. There were no heart symptoms. His general health seemed to be pretty good. He was put at once on the opium treatment; a pill containing one grain of opium with a small quantity of colocynth being given every hour. He took six pills that day, in the course of seven hours, with manifest relief to the pain, but without their procuring sleep. During the next three days the pills were continued regularly (he took fifty-two in this time); when, as he was becoming delirious, they were ordered every third hour, and then discontinued. He had thus taken sixty-two grains of opium altogether in five days. The principal effect appeared to be the relief of the pain, so that he could soon sit up easily in bed, whereas, on his admission, he could not bear to be raised. He did not sleep inordinately, and was always easily roused. The delirium noted above soon subsided on the omission of the narcotic. He was ordered to have an effervescent saline draught with ammonia.

On November 4th, however, cardiac symptoms supervened; a friction-sound and systolic murmur were heard. Leeches were applied; and the opium was again ordered as before, and again pushed till he began to show symptoms of delirium. This was on the 11th. In the interval, the symptoms of pleurisy had been added to those proceeding from the affection of the heart. He was now ordered to take the pills every three hours; and, in a few days, this was diminished to every four hours. This treatment (he had been taking the saline mixture at the same time) was continued till December 1st; when, as his pains had subsided, and he was well enough to walk, it was abandoned. The murmur had almost disappeared; the chest seemed free from fluid; and he was advancing rapidly to convalescence.

He left the house, in every respect well, on December 15th, thinking himself in no respect weaker or less healthy than before the attack.

CASE 4.—George F—, æt. 26, a huckster, was admitted on November 14th, and discharged on January 5th, with acute rheumatism (the second attack) of six days' standing. The pains were seated principally in the wrists and ankles. There was no heart affection. The progress of this was very like that of the other cases. He was ordered four ounces of lemon-juice a day, and the same pill as in the previous cases every hour. This was continued for twelve days, and during nine of them the doses were accurately noted; they amounted to a hundred and forty-one grains of opium. Murmur, both exo- and endocardiac, occurred on the fourth day of the opium treatment. The latter never produced any narcotism or delirium. There was effusion, also, in the pleura here, as in the last case; and he suffered from slight bronchitis. The pains were soon subdued; and the cuticular symptoms altogether subordinate to those affecting the chest, to which the treatment was afterwards directed.

CASE 5.—John W—, was admitted on account of a slight accident, and transferred on account of rheumatic pain and stiffness of the wrists and ankles, and some pain in the chest, on November 10th. These symptoms had existed three days. A systolic murmur was heard. In this case the same treatment was at first employed, and he took a hundred and twenty-seven grains of opium in nine days; when, as he had been brought fully under the influence of the drug, and was slightly delirious, its further use was suspended. It did not seem to have produced any marked benefit.

ART. 11.—*On the Early Stages of Inflammation.* By MR. JOSEPH LISTER.

(Edinburgh Medical Journal, Jan., 1858.)

In this communication the author gives an account of an investigation, with which he has been recently occupied, into the process of inflammation in the frog's foot. The paper is divided into four sections, with an introduction and conclusion.

In the introduction it is observed that "so far from our knowledge of inflammation being in a satisfactory condition; authorities are at variance upon the fundamental question, whether it is to be regarded, in accordance with John Hunter's opinion, as active in its nature, and consisting in an exaltation of the functions of the affected part, or whether it should not rather be considered a passive result of diminished functional activity. . . . In seeking for the solution of this great problem, we cannot expect to gain much from the contemplation of the more advanced stages of inflammation. . . . It is upon the first deviations from health that the essential character of the morbid state will be most unequivocally stamped; and it is therefore to the early stages of inflammation that our attention must be chiefly directed."

Some cases are then mentioned to show that "in the early stages of inflammation in the human subject, whether induced by mechanical irritation or by an acrid application such as mustard, or of spontaneous origin, the minute vessels become abnormally loaded with red blood, the corpuscles of which ultimately become to a greater or less extent arrested prior to the occurrence of effusion." It is afterwards shown, from numerous facts, that "conclusions arrived at from the study of the early stages of inflammation in the foot of the frog will apply in all strictness to the same morbid process in man."

The remainder of the introduction is occupied with a sketch of the principal theories which have been proposed to account for the obstruction to the progress of the blood-corpuscles in the early stage of inflammation.

The first Section of the paper is devoted to the discussion of the aggregation of the corpuscles of the blood. It is shown by the author that the *rouleaux* "are simply the result of the disk-form of the corpuscles, together with a certain, though slight degree of adhesiveness, which retains them pretty firmly attached together when in the position most favorable for its operation, namely, when flat surface is applied to flat surface, but otherwise allows them to slip very readily upon one another." The aggregating tendency of the red disks is thus regarded as a phenomenon similar in kind, though inferior in degree, to the well-known adhesiveness of the white corpuscles. It is further shown, from numerous experiments, that the red corpuscles vary remarkably in adhesiveness, in consequence of changes in physical circumstances, or very slight chemical action.

Section II. is on the structure and functions of the bloodvessels.

Allusion is made to a paper by the author, which will shortly appear in the "Transactions of the Royal Society of Edinburgh," where he has recorded the observation, that in the smallest arteries of the web of the frog's foot the middle coat is composed of muscular fibre-cells wrapped spirally round the internal membrane. The parietes of the minute arteries are thus provided with a most efficient mechanism for diminution of calibre, and contrast in this respect very strikingly with the delicate nucleated membrane which constitutes the wall of a capillary. The functions of the two sets of vessels are described as being in harmony with these differences in structure; the arteries being specially characterized by contractility, while the capillaries exhibit only such changes of calibre as are explained by elasticity.

The thinness of the capillary wall is believed to favor the mutual interchanges between the blood and the tissues, but the consideration of some facts of physiology leads the author to the conclusion that, notwithstanding the distending force of current of blood, the liquor sanguinis is not effused as a whole among the tissues in the state of health; and this is thought to imply that there subsists a mutual repulsion between the materials of the capillary wall and the elements of the liquor sanguinis, preventing the passage of the latter

into the pores of the former, except in so far as they are attracted by the tissues for the purposes of nutrition.

The heart is believed by the author to be the sole cause of the circulation of the blood in the frog's foot, and it is proved, experimentally that other sources of movement cannot have more than a very trivial influence, and that their cessation, supposing them to exist at all, does not give rise to arrest of the blood or accumulation of corpuscles in the capillaries.

Distinct evidences of muscularity and contractility have been detected in the veins of the frog's foot, but, compared with the arteries, the veins show very little spontaneous contraction.

Regarding the influence of changes in arterial calibre upon the blood in the capillaries, the author is led to conclude that "the arteries regulate by their contractility the amount of blood transmitted in a given time through the capillaries, but neither full dilatation, extreme constriction, nor any intermediate state of the former, is capable, *per se*, of inducing accumulation of corpuscles in the latter."

The influence of the nervous system upon the arteries has formed the subject of a special experimental inquiry, the results of which are given in a supplement to this paper. It is there shown that the contractions of the arteries of the frog's web are regulated by a part of the spinal cord, the irritation of which induces complete constriction of the vessels, while its destruction is followed by permanent dilatation. Neither stimulation or removal of the nervous centre for the arteries produces any perceptible change in the quality of the blood, as respects adhesiveness of its corpuscles or otherwise.

Section III., "On the effects of irritants upon the circulation in the frog's web," commences with an account of some experiments performed with tepid water applied for a brief period to the foot. This agent, which was selected as the mildest possible stimulant, produces, in a very beautiful manner, constriction of the arteries, followed by dilatation, with corresponding changes in the amount of blood transmitted through the capillaries, as explained at the close of Section II. When, however, such experiments were frequently repeated upon the same animal, and especially if the temperature of the water was more elevated, effects of a different kind began to show themselves; the corpuscles of the blood experiencing obstruction to their progress even while the arteries were fully dilated, and the vessels consequently in the state most favorable, so far as their calibre was concerned, for transmitting the current of blood. If the irritation was still continued, the minute vessels became choked with closely packed corpuscles.

Subsequent experiments with a variety of other irritating agents, showed that the corpuscles, both red and white, were obstructed in their progress through the irritated part, in consequence of their tending to adhere in an abnormal degree to one another and to the walls of the vessels. The effects upon the blood were always similar, although the means employed to produce irritation were exceedingly various, such as solutions of salts, mustard, essential oils, chloroform, heat, galvanic shock, mechanical violence, &c.

The irritant was generally so applied as to act upon a small area of one of the webs, and it was found that the abnormal adhesiveness of the blood-corpuscles was in the first instance always precisely limited to the spot which had been thus acted on, though it frequently extended afterwards more or less to surrounding parts. At the same time the vessels of the irritated spot did not differ materially in calibre from those in its vicinity, which participated in the arterial dilatation induced by the stimulus. The exact correspondence between the extent of the irritant application and that of the effect upon the blood, showed that the latter must be due to direct action either upon the blood itself or the tissues of the web. That it was not the result of direct action upon the blood was evident from the two following considerations. In the first place, most of the agents employed to cause irritation, when applied to freshly drawn blood, either had no effect upon the corpuscles, or destroyed instead of increasing their adhesiveness. Secondly, if employed so as to act mildly on the web, they induced an abnormal condition of the blood, short of actual stagnation, though very apparent, namely, slow movement of numerous and adhesive cor-

puscles; and this state of things might last, although the time of operation of the irritant was often limited to a few seconds, or even a still briefer period. Long after all the blood which could possibly have been directly acted on had left the vessels of the part, successive fresh portions continued to experience precisely similar changes in passing through the irritated area. Hence the author considers the conclusion to be inevitable "that the tissues, as distinguished from changes of calibre in the bloodvessels, are the primary seat of inflammation, and that the effects on the blood are secondary results of such derangement."

The remarkable fact discovered by Dr. H. Weber, of Giessen, but observed independently by the author, that accumulation of corpuscles occurs in the vessels of a part irritated, after circulation has been arrested by a tight ligature round the thigh, furnished the opportunity for careful comparison between the conditions of blood in healthy and irritated parts, uncomplicated by the effects of rapid movement. A series of experiments, conducted in this way, confirmed the conclusion previously arrived at, that the accumulation of the blood-corpuscles was simply the result of their abnormal adhesiveness. At the same time, these experiments brought out the remarkable fact that mere quiescence of the blood does not give rise to aggregation of the red corpuscles within the vessels, unless the tissues are in an unhealthy condition, in consequence of irritation. It further appeared that the corpuscles never exhibit greater adhesiveness within the vessels of an inflamed part than do those of blood, from a healthy part, when drawn from the body. Also, the well known adhesiveness of the white corpuscles within the vessels does not occur, according to the author, unless some degree of irritation is present, and never exceeds that which is always seen in blood outside the body. Hence the inference is drawn that the tissues of a healthy part exert an influence on the blood in their vicinity, by means of which the corpuscles, both red and white, are preserved free from adhesiveness, but that, in an inflamed part, this influence is more or less in abeyance.

This view has been confirmed by observations made on the wing of the bat.

Also the comparison of drops of blood from healthy and inflamed parts in the human subject showed, that so soon as the blood was withdrawn from the vessels, the corpuscles of the former presented precisely the same degree of adhesiveness as those of the latter.

At the commencement of Section IV., "On the state of the tissues in inflammation," it is stated that "the conclusion arrived at in the latter part of the last section, that blood flowing through an inflamed part behaves itself in the same way as when separated from the living body, naturally leads us to infer that the tissues of the inflamed part are in some degree approximated to the condition of dead matter, or, in other words, have suffered a diminution of power to discharge the offices peculiar to them as components of the healthy animal frame. This inference is strongly supported by considering what common effect is likely to be produced upon the tissues of the frog's web by all the various agents known to cause inflammatory disturbance of the circulation." It is then pointed out that all these agents, though differing greatly in their nature, agree in their tendency to inflict a lesion on the part to which they are applied, and impair the functional activity of the tissues. "But strong as are the arguments thus obtained by inference, it would be very desirable to confirm them by direct observation of the tissues. It fortunately happens that the pigmentary system of the frog is a tissue which, from its peculiar form and color, is very apparent to the eye, so that it is easy to trace the remarkable active functions with which it is endowed, and their modifications under the influence of irritation."

The author then mentions the circumstances which led him to notice that the dark pigment of the frog presents remarkable differences of appearance at different times in one and the same animal; each dark patch being sometimes of stellate figure with minutely ramifying rays, at other times in the form of a small rounded spot. These changes had been before observed by some German writers, who attributed the rounded form to contraction of the branching rays of a stellate cell. This, however, the author finds to be erroneous, and in

a supplementary section "on the anatomy and physiology of the pigmentary system of the frog," shows that the cells never change in form or size, but that the pigment-granules which are suspended in a colorless fluid are capable of being, on the one hand, attracted by a central force into a small space in the body of the cell, and, on the other hand, dispersed by a repulsive power into the minutest recesses of the ramifying rays. Both concentration and diffusion of the pigment may take place with great rapidity, implying remarkable energy in the attractive and repulsive forces, both of which appear to reside in a nucleus. The supplementary section concludes with some remarks on the physiological importance of the actual observation of such attractions and repulsions in one of the animal tissues.

The paper continues with an account of an experimental investigation into the effects of irritants upon this function of the pigmentary system. Many experiments are related, all tending to support the general proposition, that "all agents, without any exception, which have the power of inducing accumulation of corpuscles and stagnation in the bloodvessels when applied to the web, paralyze at the same time the functions of the pigment-cells." It is also shown, from experiments upon amputated limbs free from blood, that this effect is independent of the state of the circulation. In cases of slight irritation, in which the blood resumes, after a while, its natural characters (resolution taking place), the paralysis of the pigment-cells is only temporary. "Thus the pigmentary system of the frog is a remarkably sensitive index of the condition of the affected tissue, and it is fortunate that its physical characters render it so easy to read its pointings. . . . The only other tissue of the frog's web, the functions of which can be observed by the eye, is that of the arterial muscular fibre-cells," and it is found that arteries passing through an inflamed area lose their power of contraction within the limits of that area, whereas the same vessels may be often seen to contract in other parts of their course.

"Thus, direct observation of the structures of the frog's web which discharge functions apparent to the eye, furnishes unequivocal support to the inference derived from other considerations, that in inflammation the tissues of the part, the primary seat of the affection, are in a state of diminished functional activity."

The "conclusion" consists of an inquiry how far the views expressed in the paper regarding the early stages of inflammation harmonize with the more advanced phenomena of the morbid process and with other facts of pathology.

ART. 12.—*On the Treatment of Acute Inflammatory Disease.* By Dr. FINCHAM, Physician to the Westminster Hospital.

(*Lancet*, March 13, 1853.)

The object of this paper is to show that in an immense majority of cases of acute inflammation of the lungs, pleuræ, and heart—chiefly of the first two, in the form of pleuro-pneumonia—the antiphlogistic treatment is not necessary, and that patients will recover under very simple treatment—as by diaphoretics and counter-irritants; sometimes under stimulation pushed to the fullest extent; sometimes under what is, practically, no treatment at all. After alluding to the success which has now, in the experience of so many, followed the omission of the antiphlogistic plan as a rule in inflammatory disease, the author calls attention to the principle which he believes to underlie the management of all such cases, especially of pneumonia. This principle is, to regard local inflammations as the result of a previous unnatural condition of the blood, and so to place them in the category of fevers. "For what, after all," he says, "is the characteristic of a large majority of what are called fevers, whether eruptive or otherwise? Is it not constitutional disturbance, followed by local inflammation? What is scarlatina, but such disturbance, followed by inflamed throat? What erysipelas, but the same, followed by inflammation of the head and face? What dysentery, what typhoid fever, but the same, issuing in inflammation of the mucous membrane? Now, in all these there are the full signs of inflammation, effusion, &c., and yet no one thinks of bleeding, mercurialization, or the use of antimony. What is usually

and wisely done in such cases is to watch them well, and to moderate, if possible, local action, trusting in the main to the powers of nature, if no urgent symptoms are present. Such is the practice in favorable cases; but should the powers of nature be failing, then the fullest use of stimulants—no matter what the period of the disease, no matter what amount of local inflammation be present, it is necessary to sustain the flagging system. Now, if under this principle of treatment, inflammations will subside in fevers, why should we not expect the same to take place in analogous diseases? The cardiac inflammation of rheumatism and of Bright's disease is doubtless an effect of an unnatural condition of the blood; and the difference between these inflammations and those in connection with fevers is, that in the latter the morbid agent is introduced from without; in the former, generated from within. Why, then, should we expect to cut short, by large bloodlettings, an inflammation so arising as rheumatic pericarditis, when we do not expect to do so in erysipelas. The *origo mali* in both cases remains the same, notwithstanding the abstraction of blood." The author then proceeds to extend this view to pneumonia, characterized as it is by the most palpable constitutional disturbance—*e. g.*, the marked initiatory rigor, followed by the symptoms of local inflammation. He considers that the most reasonable theory of the disease is, to regard the inflammation of the lung, not as the *direct* effect of cold on the lungs, but as due to retained and altered secretions, especially of the skin, thrown back upon the blood through atmospheric impressions; and that it is as reasonable to expect to cut short the herpetic eruption, so common in pneumonia, as the pneumonia itself. On the ground, then, of an identity, or at least of analogy, in the pathology of acute inflammations and fevers proper, it is urged that a treatment similar in principle should be adopted in both class of cases. The cases are mainly drawn from the author's case book at the Westminster Hospital.

ART. 13.—On the Nature and Treatment of Inflammation. By Dr. CAMERON, Physician to the Southern Hospital, Liverpool.

(*Liverpool Medico-Chirurgical Journal*, Jan. 1858.)

Dr. Cameron argues that inflammation, in all its stages, is especially associated with a depressed state of the vital powers, and at the same time he furnishes certain statistics to show that the results of treatment in his own hospital practice have been more satisfactory since he abandoned the routine antiphlogistic plan of treatment. The patients consisted principally of sailors in the prime of life, and "usually in the enjoyment of excellent health;" and all the notes were taken carefully by Dr. Cameron himself. The statistics are as follows:—

1. PLEURITIS.—Antiphlogistic treatment in 29 cases. Recovered, 24; died, 5.

Of the 24 who recovered—

Duration of illness. In 12, illness lasted fourteen days, or more; in 10, seven days, or more; in 2, duration uncertain.

Progress of case. In 9, favorable; in 15, unfavorable.

Bleeding gave relief in all the cases, though in several it was only temporary.

Mercury. Administered in 16 cases. In 12, no action on the mouth; in 5, abdominal irritation, increase of febrile and pulmonary symptoms; in 4, progress favorable; in 3, results uncertain; in 4, mouth affected (on the fourth, fifth, sixth, and ninth days); in 2, immediate improvement occurred; in 2, results doubtful.

Antimony. Administered alone, or with opium, in 6 cases. In 4 cases it seemed to act beneficially, without producing any gastric or intestinal disturbance; in 2, abdominal irritation was present, with consequent depression of the system and aggravation of the pulmonary symptoms.

Of the 5 fatal cases—

Bleeding was practised in all, and with temporary relief.

Mercury. Administered in the 5 cases, in none of which did it seem to arrest the disease; in 1 it brought on severe dysenteric which appeared to hasten the fatal result.

Treated without Bleeding or Mercury. 13 cases (all recovered).

Duration of cases. In 2, fourteen days, or more; in 11, seven days, or more.
Progress. In 4, unfavorable; in 9, favorable.

2. PNEUMONIA.—Antiphlogistic treatment, 20 cases. Recovered, 15; died, 5.
 Of the 15 who recovered—

Duration of illness. In 9 cases illness lasted fourteen days, or more; in 6 cases, seven days, or more.

Progress of case. In 8 cases favorable; in 7 cases unfavorable.

Bleeding. In most cases *immediate relief* followed the use of this remedy; but frequently this relief was only temporary. In 5 cases, extension of the disease, either in the substance of the lung, or to the pleura, occurred after bleeding.

Mercury was administered in 5 cases. In 2, *improvement of the disease* occurred, without any apparent action of the medicine; in 1, *no benefit* seemed to be derived from its use; in 1, *aggravation* occurred during its administration.

Antimony was given alone in 10 cases. *Gastric or intestinal irritation*, accompanied by depression, appeared during its administration in 4 cases. In 2 of these, *aggravation of the disease ensued*.

The 5 deaths occurred respectively on the second, fifth, fifth, and eighteenth days. In the 5th case the period of illness was uncertain. The 5 cases were treated by bleeding and antimony. In 1 case, mercury was given in addition.

Bleeding. In 3 cases, immediate though temporary relief; in 2 cases, no relief.

Mercury. Administered in 1 case. Mouth affected on the eleventh day; notwithstanding, increase of the febrile symptoms occurred, extension of the disease, and death by acute gangrene.

Antimony. Intestinal irritation in 1 case.

Treated with antimony, diaphoretics, quinine, or stimulants. Opium administered in nearly all: 34 cases. Recovered, 24; died, 10.

Of the 24 who recovered—

Duration of case. In 17 cases, illness lasted seven days, or more; in 7 cases, fourteen days, or more.

Progress of case. In 16 cases, favorable; in 8 cases, unfavorable. In the 8 cases in which the progress was unfavorable, the change coincided with the supervention of depression; attributed in one case to severe diarrhoea, in another to sickness and nausea. Antimony had been administered in all.

10 Deaths—

Death occurred in 3 cases in less than twelve hours after admission; in 2 cases, on the second day after admission; in 3 cases, on the third day after admission; in 1 case, on the fourth day after admission; in 1 case, on the thirteenth day after admission. Antimony was administered in 2 cases. The stimulating treatment was adopted in the other cases, in which the disease was far advanced either into the second or third stage at the time of admission.

3. ENDOCARDITIS AND PERICARDITIS.—Antiphlogistic treatment (Bleeding and Mercury). 17 cases: 7, Endocarditis; 10, Pericarditis. Recovered, 16, died, 1.

Of the 16 who recovered—

Duration of illness. In 11 cases, the illness lasted fourteen days, or more; in 2 cases, seven days, or more; in 3 cases, duration of illness uncertain.

Progress of case. In 6 cases, favorable; in 10 cases, unfavorable.

Bleeding. In all the cases, relief was obtained by bleeding; but in 10 it was only temporary. In 1 case of endocarditis the pericardium became engaged the day after the bleeding; and in another—a case of uncomplicated rheumatism—the heart-affection appeared *after* the patient had been bled.

Mercury was administered in all the 16 cases.

No action on the mouth in 7 cases. In 3 of these, dysenteric symptoms occurred, aggravation of the heart-disease supervening at the same time.

Mouth became affected in 8 cases; in 2, on the fourth day after treatment; and in 2, on the eighth day. In the others, respectively on the fifth, sixth, eleventh, and twelfth days.

Increase of the febrile disturbances coincided with the appearance of the mouth in 3 cases, in two of which extension of the disease occurred.

In 5, the progress of the disease was favorable.

In the 16th case, the results of the administration of the remedy were uncertain.

Disappearance of friction sound. In 1 case, on the seventh day; in the others, at periods varying from the twelfth to the twenty-third.

Disappearance of the endocardial murmur. In 1 case the murmur disappeared on the seventh day; in the others a murmur was still audible when the patients left the hospital.

One case died—

Bleeding. Temporary relief was experienced after bleeding.

Mercury gave rise to dysenteric symptoms, but did not affect the mouth.

The case was characterized by repeated relief, followed by aggravation of the symptoms.

Two cases treated without Bleeding or Mercury.

In 1 case the friction-sound disappeared on the fourth day of the treatment. This patient was discharged on the *twelfth day* of the treatment, at his own request. The endocardial murmur was still frequently audible, but in other respects the patient felt so well that he could not be persuaded to remain in the hospital.

In the 2d case the friction-sound disappeared on the eleventh day of the treatment. This was a remarkably severe case of acute rheumatism, during the course of which the heart affection became developed. Patient recovered completely, with total disappearance of the endocardial murmur.

4. CYNANCHE (treated without Bleeding).—Cases, 14. Recovery, without suppuration, 13 cases; recovery, with suppuration, 1 case.

All the cases of *Acute Bronchitis* and *Acute Albuminuria* admitted within the last few years, were treated without bleeding, &c.

ART. 14.—Propagation of the "Distemper" from Animals to Man, &c.
By Professor KRAUSE.

(*Deutsche Klinik*, and *Dublin Hospital Gazette*, Nov. 15, 1857.)

Professor Albert Krause has lately established the communicability of this fatal distemper from the lower animals to man, and by a series of experiments has also proved that the disease may be propagated from man to the sheep by inoculation. A man, after having skinned a sheep which had distemper, sickened and died. The symptoms which he presented during life, and the appearances observed on dissection of the body, threw ample light on the nature of the disease. With the blood of this man a sheep was inoculated, which died after thirty hours, and with its blood another animal was inoculated, and so on, until seven others were destroyed; the eighth animal experimented on did not die of this operation. Death took place in each case after a period which varied from thirty to forty hours from the reception of the blood by inoculation. In the bodies the spleen was found disorganized, and the blood had assumed the appearance of tea. Under the microscope the blood-corpuscles were found to be club-shaped, and this was observed during life; even in the animal which had been last inoculated the blood presented this appearance during its illness, but it no longer existed on its recovery. In addition, vibriones were discovered in the blood of the dead animals. These observations leave no doubt that in this distemper, and in other analogous disease, the alteration of the blood plays the most important part. Professor Krause, after he had made these sections, felt a sensation of heaviness in his left hand and foot, as if they were asleep. He also experienced in these parts a sensation of formication. After some days these symptoms disappeared under frictions of liq. ammon. vinos. Six days later, symptoms referable to the brain, such as noises in the ears and spectral

illusions, set in, but they also soon disappeared. In the performance of the sections he had not injured himself, but he had examined the cavities of the animals with his left hand, upon which there was a recent cicatrix; he had, however, taken the precaution of oiling his hand previous to making the *post-mortem* examinations.

ART. 15.—*On the Murrain.* By Professor SIMONDS.

(*Medical Times and Gazette*, Jan. 2, 1858.)

The following conclusions are appended to Dr. Simonds' able and valuable report on the cattle plague:—

"1. That all the countries of Northern and Western Europe from which cattle are exported to England are perfectly free from the rinderpest; and that the only disease of an epizootic or destructive nature which prevails therein is the one known to us as pleuro-pneumonia—which disease has existed here since 1841.

"2. That in the greater part of the official dispatches and reports which have been forwarded to the Government, and by them transmitted to the Royal Agricultural Society of England, the rinderpest has been confounded with pleuro-pneumonia, 'milzbrand,' and other destructive maladies to which cattle are liable.

"3. That the rinderpest is a disease which specially belongs to the Steppes of Russia, from which it frequently extends in the ordinary course of the cattle trade into Hungary, Austria, Galicia, Poland, &c.

"4. That whenever circumstances have arisen which called for the movements of troops, and consequently the transit of large numbers of cattle in Southern and Eastern Europe, and particularly when Russian troops have crossed the frontier of their territory, the disease has been spread over a far greater extent of country.

"5. That the disease which has recently prevailed in Galicia—where it was specially investigated by ourselves—as well as in Poland, Austria, Hungary, the Danubian Provinces, Bessarabia, Turkey, &c., is the true rinderpest or Steppe Murrain of Russia.

"6. That with the exception of a few places in the kingdom of Prussia and in others in Moravia, near to the frontier of Galicia and Poland, the disease in its outbreaks of 1855, 1856, and 1857, did not extend to any country lying westward of a line drawn from Memel on the Baltic to Trieste on the Gulf of Venice.

"7. That speaking in general terms, rinderpest has not existed in Central and Western Europe for a period of forty-two years; its great prevalence at that time being due to the war which was being then carried on between the different continental kingdoms and states.

"8. That all the facts connected with the history of its several outbreaks concur in proving that the malady does not spread from country to country as an ordinary epizootic. And that if it were a disease exclusively belonging to this class, the sanitary measures which are had recourse to throughout Europe would be inefficient in preventing its extension, and consequently that in all probability we should long since have been both painfully and practically familiar with it in this country, as hundreds of our cattle would have succumbed to its destructive effects.

"9. That it is one of the most infectious maladies of which we have any experience, and that it is capable of being conveyed from animal to animal by persons, and various articles of clothing, &c., which have come in contact with the diseased.

"10. That the ox tribe is alone susceptible to the disease; and that the morbid matter on which it depends lies dormant in the system for a period of not less than seven days, and occasionally, according to some continental authorities, as long as twenty days before the symptoms declare themselves.

"11. That an attack of the disease which has terminated favorably renders the animal insusceptible to a second action of the *materies morbi* which gives origin to the pest.

"12. That the deaths often amount to 90 per cent.

"13. That the malady is one in which the blood is early, if not primarily affected; and that subsequently the mucous membranes throughout the entire body become the principal seat of the morbid changes.

"14. That the symptoms are in general well marked and quite characteristic of the affection.

"15. That all varieties of medical treatment which have as yet been tried have failed in curing the disease; the recoveries which take place having for the most part depended on the *vis medicatrix nature*.

"16. That no fear need be entertained that this destructive pest will reach our shores. Its present great distance from us would, of itself, afford a fair amount of security; but when we add to this that no cattle find their way from thence directly or indirectly to the English market, and also that in the event of the disease spreading from Galicia, it would have to break through hundreds of military cordons, one after the other, before it could possibly reach the western side of German states; and, moreover, that for years past commerce has been unrestricted with regard to skins, hides, bones, &c., of cattle from Russia and elsewhere, all alarm, we believe, may cease with reference to its importation into the British Isles."

(C) CHRONIC DISEASES.

ART. 16.—On the Antagonism of *Ague* and *Consumption*.

By Dr. COCKLE.

(*Sanitary Review*, Jan. 1858.)

The following passage is from an address on General Pathology, recently delivered at the Grosvenor Place School of Medicine.

"Dr. Green, of Whitehall, in the province of Washington, U. S., where intermittents are of unusual frequency, declares that there did not exist one single instance of phthisis developed in the district; and that the consumptive invalids arriving there experienced a relief as decided as it was permanent. The same author also states that a morass near Rutland, having been converted into a pond, the intermittent fevers disappeared from that part of the country, and were replaced by pulmonary consumption. The population having solicited and obtained the suppression of the pool, or, what amounted to the same thing, the re-establishment of the morass, the original agues returned, and antagonized the development of phthisis."

ART. 17.—*The Effects of Ague and Quinine upon the Urine*. By (1) Dr. W. A. HAMMOND; (2) Dr. H. M. STEWART; and (3) Dr. RANKE.

1. (*American Quarterly Journal of Med. Science*, April, 1858.)

2. (*Charlestown Med. Jour. and Rev.*, May, 1857.)

3. (*Medical Times and Gazette*, May 30, 1857.)

1. Dr. Hammond's investigations were made upon himself during a recent attack of intermittent fever of the tertian type, his attention having been called to the subject by the papers of Dr. Ranke and Dr. Stewart, which are also referred to in this article. The results of five carefully conducted experiments are collected together in the accompanying table.

	1st day. Paroxysm.	2d day. Intermission.	3d day. Paroxysm.	4th day. Administration of Quinia.	5th day.
Quantity of urine	1221.7 c. cm.	1650.4 c. cm.	1387.2 c. cm.	1750.3 c. cm.	1806.3 c. cm.
Specific gravity .	1020.06	1022.17	1019.45	1024.67	1024.81
Urea	325.18 grs.	460.37 grs.	300.16 grs.	489.43 grs.	638.20 grs.
Uric acid . . .	28.31 "	16.84 "	31.54 "	13.79 "	12.71 "
Free acid . . .	39.40 "	34.73 "	35.72 "	27.54 "	25.80 "
Chlorine . . .	95.42 "	114.58 "	108.11 "	129.53 "	138.27 "
Phosphoric acid	69.18 "	52.95 "	72.95 "	55.27 "	56.22 "
Sulphuric acid .	33.11 "	38.14 "	41.76 "	48.19 "	40.10 "

"From these data it is perceived that, during an attack of intermittent fever, the uric acid and phosphoric acid are very much increased in amount, and the urea and chlorine greatly diminished. During the intermission, there is a close approach to the normal proportions of these constituents, but a subsequent paroxysm restores the former condition. The disulphate of quinia, however, produces a permanent impression on the character of the urine, and, with the return to the natural relations existing between the several substances entering into the composition of this excretion, the disease disappears."

2. As the uniform result of five experiments which Dr. Ranke has made upon three healthy individuals, it appears that the disulphate of quinine has the effect of diminishing the quantity of uric acid in the urine.

"The usual method was employed for the determination of the uric acid; that is to say, 100 cubic centimetres of the urine were mixed in a test-glass with 6 cubic centimetres of concentrated hydrochloric acid, and left to stand for 48 hours. Then the uric acid, which had been precipitated, was carefully collected upon a filter. The weight of the filter in a perfectly dry state had been determined in the watch-glass apparatus. The uric acid was washed until the water that ran off the filter had ceased to have an acid reaction. The filter was then again dried in the air-bath and weighed, and the difference between the first and second weighing was calculated as uric acid.

"The following are the numbers I thus obtained, and from these the reader may draw his own conclusions. I excrete, on an average, when in a healthy state, and living on a mixed diet, 0.629 grammes of uric acid during 24 hours. This average is taken from 20 observations. Maximum, 0.832; minimum, 0.455; and the figures of this series are distributed thus: 0.8 and 0.7 occur twice each; 0.6 eight times; 0.5 seven times; and 0.4 once.

"Now, in the first experiment I took 20 grains of disulphate of quina in the course of the day; and during the next 48 hours the excretion of uric acid amounted in all to 0.542 grammes, which gives for 24 hours 0.271 grammes, or less than half my normal quantity.

"The second experiment gave a similar result, the quantity of uric acid excreted during 48 hours, after 15 grains of quina had been taken, being equal to 0.790 or 0.395 for 24 hours. On the third day, after quina had been taken, I excreted again about my normal average, namely 0.621 grammes, and on the two following days 0.543 and 0.656 grammes respectively. I now took quina for a third time, and the quantity of uric acid again fell to 0.438 grammes on the first, and to 0.192 grammes on the second day.

"The fourth and the fifth experiments were made on two of my medical friends, who kindly volunteered to take quina. Here are the results.

"Dr. S. excreted during the two days previously to his taking quina 0.544 and 0.543 grammes of uric acid. On the third day he took 20 grains of disulphate of quina in two 10 grain doses, and on that day he excreted 0.376 grammes of uric acid. The next morning he again took 5 grains of quina, and the quantity of uric acid subsequently fell to 0.317 grammes. During the three following days he excreted 0.483, 0.450 and 0.654 grammes respectively.

"Dr. M. excreted during four days prior to his taking quina 0.662, 0.774, 0.585, and again 0.585 grammes of uric acid. Then he took 10 grains of quina, and on that day excreted 0.358, and on the next 0.387 grammes of uric acid. On the third day after he had taken quina the uric acid rose again to 0.670 grammes, and remained there stationary, amounting to 0.671, and 0.668 grammes on the two following days.

"To the foregoing statement I have to add that in two of the experiments I have also determined the other constituents of the urine. The solids in general, and the urea, I found not materially affected under the influence of quina, but the phosphoric acid appeared to be augmented. However, these points require a good deal of further investigation, and I therefore abstain here from giving details.

"I hope to read very soon that others have repeated the experiment, and that we shall thus get more materials towards arriving at the truth.

"To those who might be inclined to repeat the experiment I have to add one or two remarks. There are occasionally persons met with who, though appa-

rently in good health, excrete uric acid with great irregularity, the maximum and minimum being widely separate from each other; such persons should not be used for the experiment, as it would be necessary in these cases to take the average of a great many observations in order to obtain reliable results. Moreover, it is advisable to take during the time of observation not too much fluid, as great dilution of the urine tends to make the determination of the uric acid less accurate."

This fact, Dr. Ranke considers, may tend to throw some light upon the nature of ague, and the *modus operandi* of quinine in its cure, as "in ague there is, according to all observers, a considerable increase of uric acid in the urine."

3. The observations of Dr. Stewart form the subject of a thesis, which received the college premium of the Medical College of South Carolina. Before the treatment was commenced, the urine of seven patients, suffering from ague, was found to contain uric acid, urate of soda, biliary matter and mucus. After the administration of quinine triple phosphates were found in addition, and the specific gravity was increased. Dr. Stewart does not notice the diminution of uric acid noticed by Dr. Ranke. The author also examined the urine of three healthy persons before and after the administration of quinine, and found in each case that the medicine increased the specific gravity. How increased the specific gravity he does not say. The inference drawn in the paper is, that quinine is a "blood depurator," and that in ague the blood is hyper-phosphatic.

ART. 18.—*On the Advantage of large Doses of Quinine in the treatment of Intermittents.* By Dr. JOHN SHORT.

(*Indian Annals of Med. Science*, Jan., 1858.)

"In the administration of quinine," says Dr. Short, "a complete revolution has been effected with unparalleled success in the treatment of the intermittent fever of Kamptee. Hitherto large and small doses were administered daily, and continued for several successive days, causing a large expenditure without any commensurate advantage; whilst a single dose of twenty-five grains of the salt in Europeans, and twenty in natives, has been found to be quite adequate to arrest the fever, by exhibiting the medicine immediately after the sweating stage, and following it up by bark and acid, chiretta and powdered galls, or sulphate of iron."

ART. 19.—*Of the Use of Quinine in Intermittents, with or without "Preparatory Measures."* By Dr. NICHOLS, of Buffalo.

(*Buffalo Med. Journal*; and *North American Med.-Chir. Review*, March, 1858.)

The object of this paper is to study the effect of treating cases of intermittent fever without resorting to the preparatory treatment by emetics, cathartics, &c., which are still deemed important by many practitioners; and also to institute a comparison as regards relapses and the duration of the disease, between a section of country where the disease prevails to a great extent every year, and a region not malarious.

Of 69 cases, 46 were treated in a malarious section, and 33 in a region not malarious.

Of 46 cases occurring in a malarious section, 17 were treated at once with quinia, in doses sufficient to arrest speedily the paroxysms, and 29 received preparatory treatment—viz., ipecacuanha and calomel, or calomel combined with rhubarb or jalap. Relapses were observed in 14 of the latter and in 4 of the former cases, the ratio being as 1 to $4\frac{1}{2}$ in the cases which did not receive, and 1 to $2\frac{1}{2}$ in the cases which received the preparatory treatment. The average duration of the disease, dating from the commencement of the use of quinia, was found to be less in the cases which did not receive preparatory treatment, being a fraction over six days; while in the cases which received preparatory treatment, the average duration was a fraction under eight days. Adding the period occupied by the preparatory treatment, the ratio is as $6\frac{1}{2}$ to $8\frac{1}{2}$ days.

Of 23 cases occurring in a region not malarious, all had no preparatory treatment. Of these cases, in ten previous attacks had occurred. In the latter, the

average duration of the disease, after treatment was commenced, was $3\frac{1}{2}$ days. In ten of the recent cases, the average duration was 2½ days. Of the latter, relapses were observed in two cases; of the former, in three cases.

Comparing the results as regards duration and relapses in the cases occurring in the malarious section and not receiving preparatory treatment, and in the cases occurring in the region not malarious, the contrast is striking: the average duration in the former being $6\frac{1}{2}$ days, and the average of relapses 1 in 4½; in the latter, $2\frac{1}{2}$ days, and the average of relapses 1 in 2½ cases. These results are greatly in favor of the region not malarious.

The reporter analyzes his collection of cases with reference to the types of the disease; the number of paroxysms in each type; the number of relapses and the duration in each type. He also analyzes separately the cases of tertian type.

The following summary embodies the practical conclusions which he deduces from the results of his analytical investigation:—

"From the foregoing analysis it will be seen that in cases of first attack the duration is somewhat less, and the number of cases relapsing about one-half that in cases having had one or more prior attacks. In a section of country where this fever is prevalent to a great degree every year, or in a malarious region, the duration is nearly three times that in a country not malarious, and the relapsing cases occur as frequently even under the same plan of treatment. It will be found that in a malarious region the treatment of patients by quinia alone not only diminishes the number of paroxysms and abridges the duration of the disease, but that fewer relapsing cases occur than where a preparatory course of treatment has been adopted. Even in the analysis of 40 tertian cases, although the duration of the number of paroxysms are nearly the same under the two different methods of treatment employed, yet the cases of relapse are found to be nearly twice as numerous where the preparatory plan was adopted."

ART. 20.—*On the Treatment of Chronic Rheumatism.* By Dr. INMAN.

(*Liverpool Med.-Chir. Journal*, July, 1857.)

In a paper read some time ago before the Liverpool Medical Society, Dr. Inman adverted to the frequency of its occurrence and the multiplicity of the plans of treatment employed for it; remarking that they all, however, possessed something in common. Difficulty as to diagnosis, and confusion as to treatment, he thought had arisen from the practice of classing all sorts of aching pains under one head, as rheumatic. The uneasy sensation experienced before the access of eruptive fevers, and during the course of malignant disease, or felt by those exposed to the action of mercury or lead, and by those suffering from gout, gonorrhoea, or syphilis, and in cases where it was evident that bile or urea was mixed with the blood, and by children affected with struma—had all been set down as rheumatic, though due to most varied causes. The term "chronic rheumatism," he believed strictly applicable to cases in which there is dull pain usually coming on during the night, referred to the tendinous expansions of the muscles, the pulse not quickened, the skin warm, excepting over the seat of pain, where the temperature is usually low; the pain remitting about 4 P. M., and not recurring till some time during the night. There is usually no error of secretion, nothing visible at the seat of pain. The duration may be from one or two days to six weeks. Deposits in the joints rarely take place; and that form which causes gradual contraction of joints and crippling of limbs, is rare. The rheumatic pain is usually symmetrical; its chief seats those parts least protected by fat and integuments. Loss of motor power accompanies the pain, which is increased by action and relieved by relaxation of the affected parts. Rheumatism is not occasioned by dry and intense cold, but by the more moderate degrees of cold, especially if the air be moist. The experience of Arctic navigators, and of the army before Sebastopol, as well as the comparative rarity of rheumatism among carmen, carters, and bricklayers, confirm this point. Firemen of ocean-going steamers appear particularly liable to it. Persons of feeble constitution and languid circulation are more obnoxious to it than those with good circulation. It is not common in women,

except at advanced ages. The vigorous action of the heart helps to remove the pain, as is evidenced by the improvement which generally occurs after dinner. In a case where there was great pain and stiffness in the arms, hands, and deltoid muscles, the immersion of the arms in very warm water removed the pain for the time. Many rheumatic patients felt quite well in a warm bath; though often worse after it, from increased susceptibility. The influence of temperature on the local circulation has much power over rheumatism. Patients take cold often through sitting near cold walls, &c. The cause of the pain is probably, primarily, the contraction of the pale muscular fibres of the skin, the stagnation of blood in their capillaries; the hot aching pain which succeeds being due to reaction and dilatation of the vessels; the one efficient cause of rheumatic pain in general being deficient flow of blood through the affected parts. With regard to treatment, the author thought that no satisfactory results could be ascribed to colchicum, in large or small doses. Warm baths are useful in some cases. Nitrate of potash had proved useful in the hands of some, but he thought the iodide of potassium had a stronger claim to efficiency. Guaiacum, aconite, opium, steel, and cod-liver oil, all prove useful in some cases; and the local application of heat by packing in wet sheets, blisters, sinapisms, heated irons, red flannel, and red merino, also. The indication appears to be, to restore the strength of the individual and the vigor of his circulation. In the most troublesome form, pain in the plantar fascia was removed by perfect rest and galvanism.

ART. 21.—*On the Difficult Breathing of Scorbutus.* By M. PERRIN.

(*L'Union Méd.*, Nos. 103 and 104, 1857.)

The following remarks are from a paper on scorbutus, as observed in the French army in the Crimea.

Difficult breathing was a constant symptom of scorbutus; but it sometimes assumed the form of such a serious complication as to constitute one of the most dangerous accidents of the disease. The scorbutic patients of the Crimean army were rapidly transported to Constantinople before the disease could compromise their lives. One circumstance alone defied all precautions, viz., the sudden outbreak of an affection of the chest, which proved promptly fatal. In a single night three scorbutic patients of the author's regiment died in this manner, and in a few days he himself nearly underwent the same fate. The invasion of this symptom was quite sudden. To the ordinary difficulty of breaking of the disease, there succeeded, generally in the course of one night, the extremest anxiety and an almost absolute impossibility of breathing. The thorax seemed as if compressed by an iron hoop, while the severest pains traversed the base of the chest in every direction, and compelled an immovability which only yielded to imminent asphyxia. No one can picture the anguish of an unfortunate patient thus surprised, who amidst comparative health, without fever or any cerebral reaction, finds himself suddenly condemned to absolute immovability either in the standing or sitting position, scarcely able to articulate a syllable, and obtaining a little air only at the expense of the most violent muscular efforts. In contrast with this the pulse is small, but irregular; the heart beats feebly; the respiratory murmur, though more indistinct, is unaccompanied by *râle*; percussion detects no effusion or notable congestion; and the skin, though dry, is devoid of febrile heat.

Once produced, this accident persists until death or change of place, manifesting regular alternations of better and worse, according to the hygrometric conditions by which the patient is surrounded. The appearance of this complication is not peculiar to any special stage of the scorbutus, and it sometimes even precedes all organic manifestations of the disease. M. Perrin believes that the thoracic pains spoken of by Lind and Boerhaave are of the same nature as these here described; but he has never found them, as described by Lind, confined to one side, or modifying the piercing pains of the limbs. He is disposed to attribute their production to contraction of the diaphragm, all the muscles of relation being liable to become scorbutic, i. e., to acquire the *painful engorgement* so commonly seen in the muscles of the thigh and calf.

In such a condition a muscle cannot contract, or impart the slightest movement, but at the expense of the most vivid pain; and if we supposed the diaphragm so affected, we should have a ready explanation of the excessive difficulty of breathing, unconnected with pulmonary lesion and of the relief derived from bringing into play the great thoracic inspiratory muscles.

ART. 22.—*On the Coexistence of Elephantiasis and Leprosy.*

By Mr. WARING, of the Madras Medical Service.

(*Indian Annals of Medical Science*, Jan., 1858.)

The following remarks are taken from an excellent paper on elephantiasis as it exists in Travancore—a paper in which the whole subject is thoroughly investigated. Personally, and with the aid of his medical subordinates in the various out-stations, Mr. Waring investigated no less than 815 cases.

"Nothing perhaps has tended more to retard our attaining a correct knowledge of the nature and treatment of the disease now under consideration, than the unfortunate confusion which has so long existed between elephantiasis Græcorum and elephantiasis Arabum, the former being that fearful constitutional malady, tubercular leprosy, the latter being the comparatively mild and local affection, elephantia, elephantiasis, or Cochin leg.

"Many well informed and experienced medical men, even in India, still regard them as allied diseases, but from such an opinion I must, with diffidence, be allowed to express my dissent; they present no features in common; in their origin, progress, and termination, they differ essentially. The distinction between them is well insisted upon by Dr. Copland, in his admirable 'Dictionary of Practical Medicine' (vol. ii. p. 701, *et seq.*); he speaks of the distinction between them being 'very wide,' and adds that 'it (elephantiasis Arabum) is not a tubercular malady,' which true leprosy undoubtedly is.

"In 919 cases in which the conjunction or otherwise of these diseases is noticed, we find—

"No symptoms of leprosy present	867 or 94.35
Leprosy coexistent	52 " 5.65
	<hr/>
	919 100.00

"As a doubt might be entertained as to the accuracy of the returns from the out stations, I may add that, in the 273 cases examined by myself, 255, or 93.40 per cent., were undoubtedly free from any symptom of leprosy, 12, or 4.39 per cent., were thus affected; and 6, or 2.18 per cent., presented ulcerations which some might have regarded as leprosy, but which appeared to me to be decidedly syphilitic; these, therefore, I entered as doubtful.

"In the out-station list of 542 cases, 491, or 90.59, were free from leprosy; 33, or 6.09, were affected; and 18, or 3.50, are entered as doubtful. In Dr. Pringle's Cochin list of 130 cases, 121, or 93.07 per cent., were free; 7, or 5.39, were affected; and 2, or 1.53, were doubtful. The uniformity exhibited by these three series of observations, conducted entirely independently of each other, is not a little remarkable."

ART. 23.—*On the Connection between Elephantiasis and Fever.*

By Mr. WARING.

(*Indian Annals of Med. Science*, Jan., 1858.)

In the paper to which reference was made in the last article are facts which show very clearly the intimate connection which exists between elephantiasis and fever. This fever, Mr. Waring tells us, differs comparatively little from ordinary intermittent fever, excepting that, generally speaking, the paroxysms are more prolonged and severe in their character, mostly extending over a period of three days, and even sometimes longer. Most cases are attended with marked headache; and of the three stages, the cold is the most marked and severe. The distinguishing characteristic of the fever, however, is the erysipelatous enlargement of one or more of the extremities, from which a red

line of inflammation may be traced along the line of the lymphatic vessels, extending to an enlarged and painful gland in the inguinal or axillary region, according as the upper or lower extremity is affected; great pain is experienced in these glands, especially on pressure, and there is much uneasiness in all the neighboring parts. Though so enlarged and painful, they rarely take on a suppurative action; but their tumefied condition may remain for several days after the fever has subsided. The enlargement of the extremity attains its maximum towards the termination of the febrile paroxysm, and after this has passed off some days, the extremity decreases considerably in size, though it remains larger than it was before the febrile attack occurred. The resulting swelling or enlargement is, in mild cases, uniform, not pitting on pressure, and of rather lower temperature than the upper part of the limb. In some cases, a little bulla appears near the ankle, and, after each attack, a large amount of serum exudes; in such instances, the enlargement is generally inconsiderable. In the intervals between the paroxysms the health appears to be in no way impaired.

Of 226 cases examined by Mr. Waring—

Fever had existed in 224 or in 99.11 per cent.
 " had not existed in 2 " 0.89 "

226 100.00

Of the two cases in which fever was stated not to have coexisted with the elephantiasis, one (No. 85) was a Brahmin, æt. 34, whose leg was very slightly enlarged, and in whom the symptom had only existed for one month. The other was a Syrian Christian female (No. 35), æt. 30, who had had enlargement of the right leg for twelve years; the circumference at the ankle, twelve inches. She stated that she never had any accompanying fever; simply pain, and swelling of the part periodically.

Mr. Waring proceeds:—

"These are the only two exceptions I had met with in 226 cases; the remaining 224 had periodical returns of fever in the following proportions:—

"Febrile paroxysm, once monthly	38
" " twice monthly	36
" " three times monthly	17
" " four times monthly	6
" " five times monthly	5
" " once in two months	10
" " once in three months	24
" " once in four months	10
" " once in five months	3
" " once in six months	9
" " once in seven months	2
" " once in twelve months	8
" " once in twenty-four months	1
Irregular	43
Only had one attack	4
No fever for one year	2
" for two years	2
" for three years	1
" for fifteen years (checked by opium)	2
" for ten years (stopped spontaneously)	1

224

"The above table is highly valuable, as illustrating the intimate connection which exists between fever and elephantiasis. The question which naturally presents itself, on perusing it, is, In what light are we to regard this fever? which is cause, and which is effect? Are we simply to look upon the fever as one of the attendant symptoms of elephantiasis, and merely as symptomatic of *inflammation of the lymphatic vessels and glands*; or, are we justified in regard-

ing the inflammation of the lymphatics, the local pain and erysipelatous swelling, and the subsequent deposition of albuminous matter constituting the disease known as elephantiasis, as a sequence or result of fever?

"The former opinion has been upheld by Hendy and most other writers, the latter by Dr. Hillary and Dr. Musgrave; and though it stands opposed to the opinion at present generally entertained by the profession, yet, after giving the subject the most earnest consideration, the conviction on my mind undoubtedly is, that fever is the primary disease, and that the albuminous deposit and enlargement constituting elephantiasis are a secondary affection.

"The regular periodicity of the attacks tends to establish a belief in the febrile origin of the disease. However diversified may be the interval between the attacks, varying from a paroxysm every sixth day, or five times monthly, to one in a twelvemonth, or every two years, yet, in the majority of instances, the febrile paroxysm is stated to recur in the same individual with great regularity. In the preceding table it will be seen that, out of 224 cases, the fever is said to have been irregular in only 43; in the remainder it occurred with great regularity, at stated periods. Whenever a disease, especially one of a febrile nature, exhibits a distinct periodicity, most medical men incline to the belief that it is of malarious origin. Periodicity is one of the most distinctive symptoms or signs of the operation of a malarious poison on the system. Now we have no knowledge of any disease analogous to malarious or periodic affection of the lymphatics, attended by fever and the subsequent deposition of lymph; under these circumstances, it seems more rational to regard the fever which precedes any local lymphatic disturbance as the *fons et origo mali*, and to look upon the deposition of albuminous matter in the extremities as one of the sequences of the febrile action, and of the secondary inflammation of the lymphatics.

"The succession of symptoms would also tend to establish the same belief in the origin of elephantiasis. As a general rule, the febrile paroxysm precedes the local symptoms. This has been particularly noticed at the invasion of the disease. In subsequent attacks, the enlargement of the lymphatic glands in the groin or axilla may be observed concomitant with the cold stage of the fever; but this is of comparatively rare occurrence, the fever in most cases preceding the local disturbance.

"The statements of the patients themselves tend to establish a belief in the febrile origin of the disease. Thus, of 652 persons who ascribed the invasion of the disease to some specific cause, no less than 458, or 70 per cent., attributed it to fever; and what more natural than that they should do so, seeing that a febrile attack had been the immediate precursor of the enlargement of the limb? With the two exceptions previously mentioned, every patient afflicted with elephantiasis, who has detailed his case to me, agreed in one point, '*no fever, no enlargement*.' In the interval between the febrile paroxysms, no enlargement of the limbs takes place; and if, from any cause, such as removal to an uninfected site, &c., the fever become checked, so likewise proportionally is the enlargement of the affected part also checked.

"My note-book supplies me with many illustrations of the last observation.

"Eetedah, Syrian Christian, male, æt. 42, merchant, both legs affected; disease commenced at the age of 26, no relations affected. He used formerly to have fever with rigors once a month. For a whole year he has now had no fever, and during this period there has not only been no increase, but rather a decrease in the size of the legs. (No. 20 in Sharettullay List.)

"Popanjan, Congany, male, æt. 61, merchant, left leg affected; disease commenced at the age of 39, only son affected. Had fever regularly for nineteen years, when it ceased; and from that time, a period of three years, there has been neither fever nor any increase in the size of the leg, which remains in *statu quo*—says it stopped spontaneously; took no remedies to check the fever. (No. 156.)

"Mythen, Mussulman, æt. 24, merchant, right leg affected; enlargement commenced at the age of 18, brother affected; used formerly to have fever twice or three times a month. He took a large quantity of black pepper to check the fever, and now, for two years, he has had no return of fever, nor

has there been any increase in the size of the leg; it remains in *statu quo*. (No. 180.)

"Jyepen, Illoover, male, æt. 20, coolie, right leg affected; swelling commenced one year since, had a severe attack of fever once only, when the enlargement first appeared. No fever since, nor has there been any increase in the size of the limb. (No. 22.)

"Chaco, Syrian Christian, male, æt. 48, right leg affected; swelling commenced at the age of 30, mother and brother affected; for the first three years he used to get fever three times a month, but, for the last fifteen years, he has taken opium, and during the whole of this period he has had no fever, only slight shivering and perspiration, and there has been no increase whatever in the size of the leg. (No. 213.)

"These cases have an important practical bearing, not only as illustrating the intimate connection between elephantiasis and fever, but as showing that, in order to check and control the former, we must first adopt measures to subdue and eradicate the latter."

SECT. II.—SPECIAL QUESTIONS IN MEDICINE.

(A) CONCERNING THE NERVOUS SYSTEM.

ART. 24.—*The Legal Doctrine of Responsibility in cases of Insanity connected with alleged Criminal Acts.* By Dr. FORBES WINSLOW, D. C. L.

(*Juridical Society's Papers*, Part vi., 1858.)

Dr. Winslow divides this essay (which was read before the Juridical Society, 15th December, 1857) into five principal parts: 1. The nature of insanity in its medico-legal relation. 2. The legal doctrine of responsibility in connection with insanity, associated with alleged criminal acts. 3. The doctrine of partial insanity, or monomania. 4. The existence of homicidal insanity and insane irresistible impulses. 5. Anomalous or mixed cases of mental disorder, involving the question of modified responsibility and the propriety of punishment. In discussing his subject under the first four aspects, he dwells principally on the oneness of the mind; and that psychological principle forms the basis of the opinions to which he gives expression. He combats the doctrine that the elementary and essential features of insanity consist in a disorder of the intellectual, as contradistinguished from a derangement of the moral, faculties of the mind, there being no such thing as separate and distinct faculties of that which is in nature one and the same; and, therefore, the courts of law were wrong in laying peculiar stress upon the presence or absence of delusions, as these might arise from sanitary causes. The important point, however, for consideration is, what might be the state of the effective or motive powers, what is the state of the volition, and to what degree has the mental diseases destroyed the healthy power of self-control over the thoughts and actions? Here arises the second branch of the inquiry; and after noticing the distinction which Mr. Fitzjames Stephens draws between tests of insanity and tests of responsibility, Dr. Winslow lays down the following as criteria of insanity propounded in the courts of justice: 1st, the presence of delusion; 2d, of delusions directly associated with the criminal act; and, 3d, a capability of distinguishing between what is lawful and unlawful, the capacity of knowing right from wrong, good from evil. These tests he holds to be erroneous, as their absence does not necessarily establish in the offender the *mala animus*, *mala conscientia*, which are the ingredients of criminal guilt. The tests of responsibility, however, upon which the courts acted, might be gathered from the opinions of the judges, delivered in the House of Lords in 1843. First, a person laboring under partial delusions only, and who is not in other respects insane, notwithstanding he committed a crime under the influence of the insane delusion that he is redressing or revenging some supposed grievance or injury, or producing some public benefit, is liable to punishment, if he knew at the time of committing such crime that he was acting contrary to the law of the

land. Secondly, to establish a defence on the ground of insanity, it must be clearly proved that at the time of the committing of the act the party accused was laboring under such a defect of reason from disease of the mind as not to know the nature and quality of the act he was doing, or if he did know it, that he did not know he was doing what was wrong. Thirdly, if a person under a partial delusion only, and not in other respects insane, commits an offence in consequence thereof, he is to be considered in the same situation, as to responsibility, as if the facts in respect to which the delusion exists were real. From these rules of law arises the consideration of partial delusions in their legal relations to crime committed by persons in other respects insane, under the impression that they were doing right, the legal doctrine of partial insanity, and the knowledge of right and wrong, as conclusive evidence of responsibility in cases of imputed insanity. With regard to the first view taken by the judges, they seemed to overlook the distinction drawn by Lord Erskine between the cases of Hatfield and Lord Ferrers, namely, that when a madman commits a crime under the influence of an impression which is entirely visionary, and purely the hallucination of insanity, he is not the object of punishment; but that, though he may have shown insanity in other things, he is liable to punishment if the impression under which he acted was true, and the human passion arising out of it was directed to its proper object. Dr. Winslow, however, goes further than Lord Erskine, and maintains that if a man shows insanity in any one respect, he ought to be considered as a lunatic in all; and thus he disposes of the third point under which he proposed to consider the subject of his discourse, altogether denying the existence of such a disease as monomania. He quoted the authority of several continental physicians of great experience in the treatment of mental disorder in support of his views. Under the fourth head, he mentions a number of cases to show the existence of homicidal insanity, and insane irresistible influences; and passes on to consider how far the proof of a man being actuated by such feelings in the commission of a murder should modify his punishment. He is unwilling, he says, to associate the word punishment with a case of that kind, and thinks that such a proof should entitle him to his acquittal. As he would, however, even so, be confined for life in a lunatic asylum, he would in reality be subjected to a punishment much more severe than if he were publicly executed.

ART. 25.—*Insanity among Prisoners in Penitentiaries.* By M. SAUZE.

(*Annales Medico-Psychologiques*, 1858; and *British Med. Journal*, Feb. 20, 1858.)

M. Sauze has endeavored to determine the real origin of the cases of insanity which are observed in prisons, and to show that solitary confinement (*l'emprisonnement cellulaire*) exercises no special influence on the production of mental alienation and suicide. M. Ferrus has stated that those who have given special attention to this subject have declared, that only in rare instances have they been able to attribute mental diseases merely to the depression produced by detention. M. Sauze has collected numerous facts which he believes to confirm this statement.

The study of "penitentiary insanity" shows that malefactors and criminals are too often confounded with the insane. M. Ferrus, and all who have made prisons a subject of attentive study, have recognized the facts, that certain criminals show great analogies with insane persons; that a large portion of condemned persons consist of men of imperfect intellect, driven to crime by the faults of their organization; and that most of the cases of insanity met with in prisons are due to antecedent individual predispositions. MM. Lélut and Tardieu have arrived at conclusions altogether favorable to the cellular system. M. Lélut has established the fact that, in prisons conducted under this system, the number of insane is less than in prisons conducted on the old plan. If it is true that the proportion considerably exceeds that met with in a free and honest population, this is due to the circumstance to which reference has just now been made. Dr. Prosper de Pietra-Santa, in a memoir read before the Academy of Medicine, has arrived at a totally different conclusion. He maintains that insanity and suicide are much more frequent in the Mazas

prison than in others. But he does not, M. Sauze observes, appear to have taken care to ascertain the interpretation of facts, to scrutinize the antecedents of prisoners, to take into account their individual predispositions, &c. The cellular prison of Mazas—a place for the detention of prisoners in a state of *prevention* only—of necessity furnishes a very bad element of comparison; and it is, *a priori*, conceived that suicides would there be more numerous, and that insane persons would be found there whose mental condition had not been at all understood at the time of their arrest.

M. Sauze, in his capacity of physician to the prison and lunatic asylum at Marseilles, has observed the insane both in prison and up to the end of their treatment in the asylum. He has not only ascertained the existence of insanity, but has sought out its first symptoms, however slight they may have been; and he has arrived at the conclusion that, in the greater number of the cases, the insanity has been anterior to the imprisonment; and that several times persons have been sent to prison who were in need of treatment in asylums.

The cellular prison at Marseilles, of which M. Sauze has been physician two years, is constructed on the model of that of Mazas. The system followed resembles that of the Philadelphia prison. Isolation is rigorously maintained day and night, being accompanied by labor, walking, exercise, and frequent visits. M. Sauze has related at length fifteen cases; of which, however, an analysis is not here given. To these are added twenty-nine cases of imbecility in various degrees, accompanied by malformation of the skull; thus making a proportion of forty-four insane in a population of prisoners which, in two years, has amounted to about 2400. This proportion at first sight seems large; but in three only of the cases was the insanity first manifested in prison, and even in these three it was possible to demonstrate the existence of numerous predisposing causes dating several years back. Thus M. Sauze finds three insane in 2400, a proportion very small compared with that found in a free and honest population, which, according to M. Ferrus, gives one in 1830, and, according to M. Lélut, two in 1000. The Marseilles asylum receives an almost equal number of cases of insanity from the house of detention, which is managed under the old *régime*, and from the cellular prison.

M. Sauze does not attempt to deduce absolute conclusions from his statistics, imperfect as they are, and supported by the experience of two years only. His aim has been only to make approximate conclusions, and comparisons which may point out the necessity of further researches into penitentiary insanity. The facts observed by M. Sauze have led only to the general conclusion, that the cause of penitentiary madness is to be sought less in imprisonment, whatever its form, than in the nature of the prison population. "In imprisonment as well as in freedom," says M. Ferrus, "almost all individuals attacked with insanity have been predisposed to the disease. A man, in fact, whose faculties are exactly balanced, may, without losing the free exercise of perfect reason, resist the hardest reverses in life, the most touching losses, and even excessive pain. The most prolonged imprisonment leaves his moral sense intact, and his intellect quite clear."

M. Sauze believes that he can conclude from his observations that most prisoners in whom insanity has been observed were diseased before entering prison, often even before their sentence, and at the time when they committed the crime. In those who have become insane subsequently to imprisonment, numerous predispositions can always be found; whether in a state of imbecility or epilepsy, or in previous attacks of mental alienation, or in a life of privation and misery, of debauch and excesses of all kinds. Insanity in prison may also arise from causes independent of the prison system. Thus, among the cases observed by M. Sauze, were two individuals who attempted suicide, and manifested symptoms of insanity, a short time before the expiration of their punishment; these were Piedmontese deserters, who feared that they would be sent back to their native country, where they had incurred the punishment of death.

Condemned persons may be imprisoned during the commencement of an *attack of insanity*, during its incubation, or they may have *intermittent insanity*,

and the time of an attack may happen to fall within the period of imprisonment. Here there are so many sources of error.

M. Sauze insists forcibly on the analogies which exist between the insane and a certain proportion of prisoners, who have not a correct notion of good and evil, and who would have a right to the benefit of irresponsibility. Certain individuals are sent by turns to an asylum or to a prison, according to the view taken of their case by the magistrate. M. Sauze has met alternately, in the Marseilles prison and in the asylum for the soldiers of Algeria, men of defective organization, who only leave an asylum to be sent to a prison.

In referring insanity to causes for the most part foreign to imprisonment, M. Sauze does not pretend to deny entire the influence of incarceration. Imprisonment produces a state of depression and melancholy very favorable to the development of insanity. It is true, however, that the sadness generally disappears at the end of some days, and that the culprit becomes habituated to the rigors of the prison regulation. Insufficient food, want of exercise and of air, may also act in the long run as debilitating causes, like privations of any kind in free life, and may give rise to mental alienation. Insanity may also arise from other diseases characterized by debility and constitutional exhaustion, which prevail in prisons.

M. Sauze sums up his memoir in the following conclusions: 1. The causes of penitentiary madness are generally independent of imprisonment, whatever be the system followed. 2. The insanity is generally anterior to entrance into prison, and even to condemnation. 3. When developed in prison, it is even then the result sometimes of causes foreign to imprisonment. 4. The greater number of causes of penitentiary madness are inherent in the prisoner and not in the prison. 5. They consist especially in individual predispositions, such as hereditary tendency, imbecility, idiocy, or epilepsy; previous attacks of insanity; or a life of privation and debauchery. 6. There are the closest analogies between the insane and a certain class of prisoners, consisting of men of defective organization. 7. A certain portion of the inmates of prisons would be better placed in lunatic asylums. 8. The number of insane persons condemned to prison is considerable. 9. The cases of insanity which are manifested in prisons are not due to the influence of incarceration alone; they are connected with various causes of general debility, especially insufficient diet.

ART. 26.—*To what degree is the Mind affected in cases of Apoplexy, and Hemiplegia?* By Dr. M'CREEDY, Physician to Bellevue Hospital.

(*New York Journal of Medicine*, Sept., 1858.)

This inquiry, irrespective of its medico-legal relations, is of interest and importance to the medical practitioner. Dr. M'Creedy brings to bear upon it the results of an analysis of cases collected from different authors, as well as instances falling under his own observation, and communicated to him by medical friends. From an examination of "a collection of cases of apoplexy," by Mr. Copeman, of London, published in 1845, he arrived at the following conclusions: "In all, out of a record of two hundred and fifty cases, fifty cases have been taken in which the patient had recovered from the first effects produced by the apoplectic stroke. They are all the cases contained in the book in which such recovery had taken place, and in which the cases were clearly of an apoplectic character. Yet in no one of the cases is there the slightest indication that the patient was left with a mind, I will not say reduced to a state of imbecility, but impaired in any marked degree. They all, as far as the mind is concerned, with the exceptions to be mentioned, recovered; recovered perfectly; were restored to their usual state; returned to their previous occupations. In two instances the faculty of speech was either deranged or lost, and in those instances their physicians assert that the faculty of language, not reason, was deranged. In the third instance the patient is stated to have recovered with an impaired memory, and with some confusion of thought; but a merchant seventy-three years of age, who, after partial recovery from a severe apoplectic seizure, is enabled to labor for his support by writing for the weekly papers, may be esteemed to have still possessed a fair share of intellect and

energy. The second attack left him yet more prostrate, very much weakened in body, and unable to do anything for the support of his family. From the third attack he never recovered; still there is nothing like imbecility; he lies for months in a feverish condition, alternating between coma and delirium, and even a few days before his death he partially recovered and talked in a rational manner with his wife."

The foregoing conclusions are corroborated by the results of an examination of a series of case contained in Andral's *Clinique Médicale*, and in the *Anatomie Pathologique* of Cruveilhier. These cases, like the preceding, are quoted in brief detail by the writer. In expressing the results of this examination, the writer says: "Here, then, are sixteen cases in which the condition of the intellect before the attack was obscured, in which the nature of the disease was verified by post-mortem examination—being all that are contained in the *Clinique Médicale* of Andral, and the *Anatomie Pathologique* of Cruveilhier, and reported by men whom every one will allow were competent, careful, and conscientious observers—in which the hemorrhage was situated in almost every part of the brain, presenting every degree of severity compatible with the continuance of life, many of them living for years after the occurrence of the apoplectic seizure, and yet in only two of these was there any decided improvement of the mind noticed."

The writer adds: "Perfectly in accordance with this have been the results of my own observations. At Bellevue, the great pauper hospital of the city, there are always a number of hemiplegiacs; but since my attention has been directed to the subject, I have seen no case in which hemiplegia has been the consequence of a well-marked apoplectic seizure, in which I have found the intellect seriously impaired. In some of these cases the first impression of the observer is wholly unfavorable to the intelligence of the patients; the distorted countenance, the impaired speech, and the motiveless tears or laughter, give them an appearance of utter imbecility; yet a patient examination will commonly discover an amount of intelligence entirely unexpected." * * * "From the facts given above, no other conclusions can be drawn than that any impairment of mind, as a direct consequence of apoplexy, after the patient has recovered from its primary effects, must be an exceptional occurrence. That the apoplectic seizure may hasten the approach of senile atrophy of the brain is, as before stated, probable; when atrophy has already commenced, an apoplectic attack may undoubtedly quicken its progress, and, in such a case, the friends of the patient would naturally attribute the rapid decay of the mind wholly to the apoplectic seizure. This, I think, I have myself seen; and as apoplexy becomes more common as life advances, such cases may not be unfrequent. The confusion of mind, the difficulty in pursuing a train of thought, of which apoplexies are apt to complain, is to a great extent the mere result of diminished nervous energy. They comprehend well, and judge correctly, but, before their general health is confirmed, they can no more think continuously than they can take a long walk, or perform any other act demanding a considerable expenditure of nervous force. It is not the brain specially that is affected—it is the system at large. Of all the faculties, memory, either special or general, is most apt to be impaired, and this impairment patients are always ready to admit and complain of. As the patient recovers, the memory commonly improves; and if no new attack supervene, this improvement is progressive for years." * * * "Whence, then, arises the number of imbeciles who are to be found in every almshouse? Partly, doubtless, from the cases already mentioned, in which senile atrophy is prematurely caused, or its progress hastened by the occurrence of apoplexy. And let us recollect the state of isolation and neglect from which such persons frequently, often necessarily suffer, is in itself a main cause of a weakened intellect: the mind rusts out for want of exercise."

The writer details a series of cases in which, while the hearing remained unaffected, the patient's consciousness entire, and no delirium, the faculty of speech was either lost or perverted. He remarks on these cases as follows: "Here, it will be seen, are eleven well-marked cases of hemiplegia, three of them complicated with epileptic convulsions, and all of them with loss or per-

version of the faculty of speech. Besides the cases here recorded, three more have come to my knowledge, the subjects of which, I believe, are still living. This shows conclusively the loss of speech, as an accompaniment of hemiplegia, to be no very rare occurrence. Of the whole fourteen cases, two have perfectly recovered the use of speech; two have recovered it to a partial and limited extent; the others still, I believe, remain speechless. From the cases recorded in the journals to which I have access, I believe that recovery from perversion of the faculty of speech is more common and perfect than when the power of articulation is either wholly lost or confined to a few monosyllables. Direct medication, except in so far as it improves the general health of the patient, seems to have no effect on the lost faculty; more is to be hoped for from careful, long-continued, and well-directed exercise of the local organs by the patient himself."

The foregoing conclusions are certainly at variance with the views inculcated by medical writers and commonly held by practitioners. The general belief is, that after an apoplectic seizure, as a rule, the mind is more or less impaired, and in severe cases the patient is apt to fall into a condition of partial or complete imbecility. Epilepsy is also supposed to tend intrinsically to induce deterioration of the mental faculties in proportion to the frequency and severity of the paroxysms. Assuming that the writer's conclusions are correct, it is in a great measure owing to the prevailing error on the subject that the faculties of the mind are, in a certain proportion of instances, permanently damaged; and it becomes a very important point in practice to enjoin, under judicious restrictions, that degree of exercise of the mental faculties which shall secure their healthful if not vigorous activity.

ART. 27.—*Case of Hydrocephalus treated by Puncture.* By Mr. LAWRENCE, Surgeon to St. Bartholomew's Hospital.

(*Medical Times and Gazette*, April 3, 1853.)

The following case is reported by Mr. Chippendale, Mr. Lawrence's house-surgeon.

CASE.—A delicate, ill-nourished, hydrocephalic child, seven weeks old, was brought on December 29th to the hospital. The history that the mother gave was as follows: She stated that the child at birth did not present any unusual appearance, but that about three weeks afterwards, she first observed a swelling at the back of the head, and from that time the head had enlarged with a rapidity quite out of proportion to the growth of the other parts of the body.

Unfortunately there was no opportunity of ascertaining by measurement the exact circumference and breadth of the head previous to the evacuation of the fluid, but as far as one could form an opinion from a hasty examination with the hand, there could not have been a less interval than three inches between the parietal bones, and from the coronal suture to the apex of the occipital was a place of at least seven. There were some slight peculiarities in the shape of the head. It differed in some respects from the ordinary appearances of hydrocephalus. There was a want of symmetry about the head, from the bones not being equally expanded. For instance, there was scarcely any protrusion of the frontal bone, not that marked prominence which is generally seen, and might have been expected in the present case, considering the quantity of fluid evidently contained in the cavity of the cranium. It was evident, however, from the protrusion and downward direction of the eyes, that the orbital plates were depressed. The occipital bone was thrust downwards and backwards, so that it was nearly horizontal in its direction, but this may have been due to the position in which the child habitually lay, allowing the fluid to gravitate towards the posterior and most dependent part. The same explanation may account for the absence of lateral symmetry, the left parietes projecting more than the right. This, however, did not disappear on the position of the child being changed.

The child lay in its mother's arms in a semi-comatose state, apparently not taking notice of anything passing around, occasionally giving a low moan. The head drooped helplessly on one side, the vertebræ and muscles not being

sufficiently strong to maintain it in the erect position. The eyes were prominent, directed downwards, and constantly rolling from side to side; and, to add to the disfigurement, there was divergent strabismus. The pupils were rather dilated. Such had been the state of the child for the last few weeks; but of late the head had enlarged so rapidly, and the little sense or power of perception which the child possessed had become more dim, while at the same time the nutrition of the other parts seemed almost at a stand-still. Under these circumstances, so hazardous to the existence of the child, no other course was open than a resort to the trocar. After some difficulty the scruples of the mother were overcome, and her consent obtained. A very fine trocar and canula were introduced into the coronal suture, about an inch or so from the middle line, in order to avoid the longitudinal sinus, and eight ounces of clear, pale fluid drawn off.

It escaped with a slight saltatory motion, being influenced, I presume, by the movements of the brain, or by the cries that the puncture evoked. The effects of the removal of the pressure were immediate and decided. While the fluid was flowing the child gave a louder cry than it had ever before uttered, and showed other signs of being more lively. The eyes receded somewhat from their former prominent position, and assumed a more natural direction; the rolling ceased; the strabismus became less marked. The bones of the cranium collapsed, their serrated margins being distinctly visible. More might have been drawn off, but it was not thought advisable to do so. The child bore the operation remarkably well, no convulsions ensuing. Strips of plaster were then applied in a circular manner round the head, to compensate for the pressure of the withdrawn fluid.

The child was brought to the hospital four days afterwards. The mother stated that the child had appeared much relieved, and had been more cheerful and lively for the first two days, but on the third it had been very restless and feverish, and from that time it had relapsed into the same drowsy condition. The head, on the removal of the strapping, appeared very tense, and to have acquired almost the same dimensions. The surface of the head was hot. Mr. Lawrence repeated the puncture, but in a different situation, selecting the posterior part, as the fluid gravitated in that direction. Ten ounces were let out. A little hemorrhage followed the perforation, and the child became rather blanched. I thought I observed a few slight, transient, convulsive movements of the face, and a clenching of the hands. No compression was employed this time, merely cold applied, and hyd. c. cretâ, gr. iij, ordered to be taken every night. The child was again brought on Tuesday last, four days after the second puncture. The head had not enlarged to the same extent as before. The child had not been so drowsy, but, on the contrary, more restless. Its appearance was much more animated. Dose of hyd. c. cretâ increased.

Another ten days elapsed before the child was again brought to the hospital. The mother stated that during that time the child had continued to improve in health, and had shown more animation. The head continued about the same size as before. Not having seen or heard of the child for more than three weeks, I proceeded to inquire at the mother's residence, but unfortunately the family had left a few days before, and the landlord was unable to inform me where they had moved to. I learned, however, from him that the baby had died about ten days back, apparently from innutrition; that the head had not, in his opinion, increased in size, and that it had no convulsions.

ART. 23.—*New Researches on the General Paralysis of the Insane.* By M. LINAS.
(*New York Journal of Medicine*, March, 1853.)

The following quotation is taken from an excellent report by Dr. Brown-Séquard on the recent advances of the medical sciences in France:—

"This affection, which has been, for the first time, well described by some French physicians, among whom particularly Bayle and Calmeil, has lately been the object of a very remarkable inaugural dissertation by M. Linas. One of the principal questions examined by this young physician concerns the nature of this disease. Is it the effect of an inflammation of the encephalon or

of its membranes, as Bayle, Delaye, Calmeil, Parchappe, and others admitted, or is it a purely *nervous* affection of the brain, as Lélut and others have maintained?

"Already Bayle had opened one hundred corpses of paralytic insane, and Calmeil forty-seven. They had found the meninges of the convexity of the cerebral lobes opaque, injected, hardened, infiltrated with serosity, and offering frequently granulations or false membranes. M. Linas has opened one hundred and fourteen bodies of paralytic insane. In twelve cases he has found the pia mater excessively injected. The cerebral substance was quite full of blood, the gray matter being from an intense red to a dark violet. In twenty-eight cases, besides the preceding alterations, there were adhesions between the convolutions and the meninges. In seventy-four cases, the meninges were infiltrated, opaque, and as tough as a fibrous membrane; the cortical substance of the brain, sometimes violet, sometimes yellowish, according to the degree of the paralysis, always softened, less thick than in normal brains; the white substance injected, and sometimes infiltrated; the convolutions meagre, and the whole mass of the brain more or less atrophied.

"In thirteen cases, besides the preceding alterations, there was one or many small circumscribed places where the encephalitis had been more violent than elsewhere. In eight cases there were also effusions of blood.

"From these facts it results positively that the paralysis of the insane depends upon a chronic inflammation of the brain and its meninges. Whether the disease begins in the membranes, as Bayle had said, or in the brain itself, as M. Calmeil maintains, is a question of comparatively little importance. The great point is, that the brain is always inflamed. M. Calmeil has ascertained with the microscope that in doubtful cases, when the brain did not seem to be much altered with the naked eye, there were, nevertheless, all the microscopical appearances of inflammation.

"M. Linas relates cases to prove that an acute encephalitis may cause the paralysis of the insane.

"As regards the first symptoms of this affection, M. Linas declares that sometimes intellectual disorders first appear, and in other cases muscular paralysis and insanity appear at the same time. It has been said that there was always what is called by the French *ambitious delirium*. But Parchappe, Trélat, Lasègue, have shown that there are exceptions to this rule, and that, therefore, there is nothing specific or essential in this symptom. M. Linas goes farther, and he calls this opinion a paradox. According to him, the delirium of paralytic insane has sometimes the monomaniac form, sometimes the hypomaniac, and in other cases the maniac; but he acknowledges that ambitious ideas are extremely common."

ART. 29.—*On Facial Paralysis as a Sign of Cerebral Hemorrhage.* By M. TROUSSEAU.

(*Gaz. des Hôpitaux*, No. 64, 1857.)

M. Trousseau observes that in facial paralysis properly so called, that in which the seventh pair is alone concerned, the loss of motor power is ordinarily complete and absolute, while when it depends upon cerebral hemorrhage it is never complete. There may be some difficulty in the movements of the mouth, but nothing comparable to that seen in paralysis of the seventh pair; and we never find the paralysis of the orbicularis palpebrarum carried to the same extent. The patient is always enabled to cover a portion of the eyeball, which is not the case in facial paralysis. M. Trousseau, in fact, has never once witnessed paralysis of the seventh pair which was not complete at least at its commencement, nor, on the other hand has he seen a single case of facial paralysis, dependent upon cerebral lesion, and accompanied by general hemiplegia, in which the paralysis of the orbicularis was carried thus far. It is, therefore, a diagnostic sign of importance.

ART. 30.—*On the Effect of Galvanism upon the Augmentation of Hearing which may exist in Facial Paralysis.* By M. LANDOUZY.

(*Gaz. Méd. de Paris*, March 13, 1858.)

M. Landouzy was the first to pay particular attention to the condition of the hearing in cases of facial paralysis, and his investigations may help us to decide the important question, whether the brain is or is not affected in these cases. If the hearing is diminished, it may be supposed that there is some actual lesion in the brain or in the auditory nerve; if the hearing is more acute, there is reason to believe that the facial paralysis is dependent on simple paralysis of the facial nerve or of its tympanic branch; if the hearing is unaffected, it is said that the paralysis of the facial nerve does not implicate the tympanic branch.

M. Landouzy considers that the exaltation of hearing in facial paralysis, depending upon simple paralysis of the facial nerve, depends upon paralysis of the m. internus mallei, and he relates a case in which the exalted hearing became natural during the passage of the galvanic current through the ear, and exalted again when the circuit was broken. In this case it is supposed, first of all, that the membrana tympani is relaxed by the paralysis of the m. mallei internus, that the sonorous vibrations are more marked in consequence, and that this is the reason why the hearing is rendered more acute; and in the next place, it is concluded that the effect of this current is to throw the paralyzed muscle into a state of contraction, to stretch the membrana tympani, and in that way to render the hearing less acute by diminishing the sonorous vibration transmitted to the brain.

It is, however, somewhat questionable whether this explanation is altogether satisfactory.

ART. 31.—*The Æsthesiometer.* By Dr. SIEVEKING, Physician to St. Mary's Hospital.

(*Medico-Chir. Review*, Jan., 1858.)

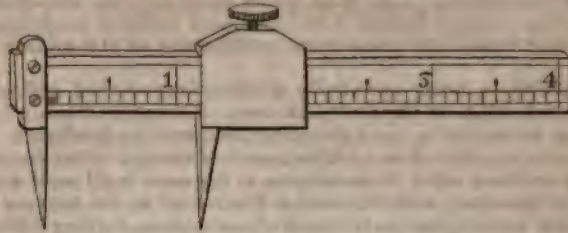
This little instrument has been contrived and employed by Dr. Sieveking for the purpose of aiding in the diagnosis of certain forms of nervous diseases. Its employment is based upon the principle that the capability of distinguishing the distance between two points at different parts of the body varies with the tactile sensibility of the respective regions. This power, in health, follows the general law of symmetry governing the body; hence, where in morbid conditions the tactile insensibility of one side is impaired, we have a means of determining the relative extent of the impairment by ascertaining at what distance the individual can feel two distinct impressions from two sharp points, slightly pressed upon the skin. The absolute impairment of tactile sensibility may be ascertained by comparing a given result with the tables of Professor Weber, which are contained in most handbooks of physiology.* Thus, if a person in health is able to recognize as two distinct impressions at the tips of his fingers, points one-tenth of an inch apart, it follows that if we find him unable on one or both hands to distinguish more than four-tenths, there must be a serious impediment to the reception or conduction of tactile impressions. The nature of the impediment must of course be determined by other evidence. It is manifest that by applying an instrument to measure the tactile sensibility of different parts involved in a paralytic affection, we secure a more trustworthy standard to judge of its extent and character than if we trust to the patient's description of his sensations, or the ruder modes of pinching and pricking ordinarily employed.

There are three main classes of circumstances in which the Æsthesiometer, of which the annexed wood-cut gives a reduced illustration, has been found useful.

1. In actual paralysis, to determine the amount and extent of sensational impairment.

* Müller's Elements of Physiology, translated by Dr. Baly, vol. i. p. 701.

2. As a means of diagnosis between actual paralysis of sensation and mere subjective anæsthesia, in which the tactile powers are unaltered.



3. As a means of determining the progress of a given case of paralysis for better or for worse.

It would be superfluous to give illustrations of each of the three classes of cases in which the æsthesiometer may afford us assistance. The first and third speak for themselves; to obviate the possibility of a misunderstanding of the second, an instance is subjoined which will serve as an illustration:—

E. M'M., æt. 52, suffered for six months before the first consultation from numbness and formication of the left hand, with severe nocturnal pains along the tips of the fingers and at their metacarpal ends; the patient rarely had pain in the thumb, and none in the palm of the hand. There was frequent vertigo. To determine the character of the numbness, the æsthesiometer was applied, and the patient was found to distinguish one-tenth of an inch equally well at the tips of the middle and third fingers of both hands; the instrument aided in the determination of the diagnosis by showing that the numbness was purely subjective, and not the result of a true paralytic affection.

The instrument is one of very simple construction, being essentially what is known to mechanics as a beam compass. It consists of a rod of bell-metal, four inches in height, graduated into inches and tenths of an inch. At one end is a fixed steel point; another steel point is made to slide upon the beam, and can be fixed at any distance from the first, by a screw which works at the top of the slide. The experimenter notes down the smallest interval at which the person experimented upon is able to recognize two impressions when the points are gently and simultaneously pressed upon any given part. Certain precautions are necessary here, as in all other experiments, in order to insure trustworthy pursuits.

It is important that the patient should not know what is expected of him; therefore it is well not to inform him of the object with which the instrument is applied. At whatever part it is used, it is easy to prevent the points from being seen, so that the eye may not aid in the determination of the tactile impression. It is equally necessary to make the two points impinge upon the surface at the same time, in order to prevent the production of two successive impressions, which would necessarily alter the value of the result.*

ART. 32.—*The Pathology of Convulsions, with especial reference to those of Children.* By Dr. REYNOLDS, Assistant Physician to the Westminster Hospital.

(*Liverpool Med.-Chir. Review*, Jan., 1838.)

The following is an abstract of the contents of this paper:—

I. All vital actions are accompanied by, and depend on, physical changes in the living organism.

II. Modifications of vital action depend on modified physical conditions. Some symptoms of disease are modifications of vital actions, and there are two general modes in which they are, or may be, related to the nutrition change:—

* The instrument may be obtained from Mr. Becker, mathematical instrument maker, 39 Newman Street, Oxford Street.

1. Negative symptoms—i. e., those which consist in the negation of vital properties, such as paralysis, anæsthesia, &c.—may depend directly on a “solution of continuity,” or some other distinct organic disease; but—

2. Positive symptoms—i. e., those which consist in the alteration or excess of vital action—cannot depend directly on such textural condition, but must have for their immediate cause some modification of the minute interstitial processes.

III. Convulsions, being essentially modifications of vital actions, must depend on modifications of physical conditions. Though no “lesion” is discoverable, we are warranted in the conclusion that nutrition is affected.

IV. Convulsions depend on modified nutrition changes in the nervous centres.

V. The proximate cause of convulsions is the same in all cases when the convulsions are the same; and the lesions discovered in the nervous centres or elsewhere are not the proximate causes of convulsions, for they differ in locality and kind, and have no constant proportion to the symptom in question.

VI. The proximate cause of convulsions is an abnormal increase in the nutrition changes of the nervous centres—an increase in relation to time or to mobility.

VII. The remote causes are such as induce the abnormal increase. There are three general modes in which these causes operate:—

1. The nervous centres may be involved in a *general* nutrition change—e. g., as during dentition, at puberty, in Bright's disease, scrofulosis, rickets, &c.

2. The nervous centres may be the seat of *special* disturbance owing to organic lesion, as tumor, spiculae of bone, &c.

3. Eccentric irritations may affect their nutrition through afferent nerves.

VIII. The diagnosis in convulsions is that of the *remote* cause, and the first step is to ascertain to which of the above three categories the case belongs. In children, the diagnosis will turn on:—

1. The *duration* of the paroxysm;
2. The *frequency* of its repetition;
3. Its *local* or *general* distribution; and
4. Interparoxysmal symptoms.

The last are of the most value; and the positive or negative character of the symptoms, together with local distribution, afford material assistance in this process.

IX. The *treatment* of convulsions is guided by the diagnosis, and will consist in the removal or palliation of eccentric irritations, the improvement of general nutrition, and the treatment of local disease.

ART. 33.—*Case of Hysteria simulating Hydrophobia.* By Dr. M'GUGIN.

(*Iowa Medical Journal*, July and Aug., 1857; and *North American Med.-Chir. Review*, March, 1858.)

CASE.—The patient was a young married female, of extraordinary mental acquirements, and highly impressible. The attack occurred shortly after the death of an infant, her only child. It commenced with pain in the head, without febrile movement. The bowels were constipated, the urine pale, and an attempt at swallowing was undertaken with reluctance and performed with difficulty. Shortly after, she became subject to paroxysms, during which she complained of thirst and demanded water; but on bringing it to her lips violent spasm of the larynx was excited. “When first attempting to drink, the appearance of the water seemed to produce a light shivering, as if of dread, and after some hesitation she would hurriedly, apparently with a feeling of desperation, seize the cup, and with a sudden effort attempt to gulp it down, during which respiration was suspended; and after the effort of swallowing, her conduct resembled that of an individual who had been for a time immersed in water of a low temperature. Then followed a wild expiratory screech. During these fits her countenance manifested the wildest frenzy, and all the muscles of the body seemed tensely contracted.” These paroxysms were excited by the unexpected entrance of strangers, a sudden noise, or a current of cold air.

Aphrodisiac symptoms supervened, and she finally fell into fatal coma. The case was treated by antispasmodics and the inhalation of chloroform.

ART. 34.—*On the Use of Oxide of Zinc in Epilepsy.* By Dr. RADCLIFFE.

(*Epilepsy and other Convulsive Affections, their Pathology and Treatment.* 2d edition, post 8vo., Churchill, 1855.)

The present fancy for oxide of zinc has been caught from M. Herpin, who has devoted a substantial volume* to the purpose of showing that many cases of epilepsy may be cured by the vigorous and persevering use of this remedy. The doses used by M. Herpin are very large, or very soon they become so; and if they caused any inconvenience, it was only during the first few days of the treatment, when there might be a little nausea, or vomiting, or diarrhoea. In the cases of an adult, 3 grammes of the oxide are mixed with 4 grammes of powdered sugar, and divided into twenty doses, of which one is to be taken three times a day. These twenty doses serve for the first week. After this the quantity of oxide is increased every week by the addition of 1 gramme (about 15 grains); and in this way, if the patient persevere, he will take 52 grammes in eight weeks, 132 grammes in fourteen weeks, and 327 grammes in about six months. In the case of an infant under twelve months, the quantity given in the first week is 0.25 gramme, and the addition made on each successive week is also 0.25, so that 5.25 grammes will have been taken in six weeks, 23 grammes in three months, and 68 grammes in six months. Sometimes at first it was found desirable to omit the dose taken in the morning, in consequence of the stomach being a little rebellious, and once or twice it was necessary, on account of the same difficulty, to go on for longer than a week before beginning to increase the dose; but these cases were exceptional, and, when they did occur, relief was often obtained at once by giving the remedy in the form of a pill, instead of in the form of a powder. And, lastly, it is a fundamental rule in this plan of treatment to persevere in the use of the remedy, and, in as short a time as possible after the cessation of the fit, to give a larger quantity than had been given previously. This is to prevent relapse. Thus, if two months had been spent in the treatment, and 45 grammes of the zinc had been necessary to suppress the attack, it would be necessary to go on for another month, and, at the increased doses, to give at least 100 grammes before giving up the treatment; or, if the zinc had been given for three months, and as much as 125 grammes taken before the attack yielded, it would be necessary to go on for three months longer, and not to give up until 300 grammes had been taken.

In the work in question, M. Herpin relates thirty-eight cases of epilepsy or epileptiform disease, in nearly all of which he gave the oxide of zinc in the manner which has been mentioned, and the question for us to consider is whether these cases permit us to rest content with the conclusion which has been drawn from them. The question is important, for this may be said to be the main body of the evidence in favor of zinc as a remedy in epilepsy. Of these cases, then, three are related as incomplete from the patient having been lost sight of, two as instances of spontaneous cure, seven as instances of amendment, nine as instances of failure, and *seventeen as instances of cure after treatment*, so that, setting aside the seven cases of mere amendment as not altogether conclusive, the number of cases at once falls from 38 to 17. But these seventeen are not to be taken without further reduction. Thus, one (Case 15) must be excepted as having had no zinc at all; and others (Cases 8, 14, 21, and 22) as being, to say the least, very dubious cases of epilepsy. In Cases 8 and 14 the patients were *infants*, whose ages respectively were ten months and seven months. In the first, convulsion, which had recurred repeatedly for five months, ceased immediately on taking the zinc; in the second, convulsion of three or four days' duration recurred repeatedly during the first fortnight of the treatment, and then ceased. In Cases 21 and 22, each patient was upwards of *seventy years of age*, and each patient had only one fit; in one, the person continued well for years afterwards; in the other, an attack of apo-

* Du Prognostic et du Traitement Curatif de l'Epilepsie, Paris, 1852.

plexus occurred at the expiration of three years, and the person remained hemiplegic until his death, which occurred three months afterwards, but there was no repetition of the convulsive seizure. In a word, Cases 8 and 14 may be regarded as cases of infantile convulsion rather than as cases of epilepsy, in the ordinarily restricted sense of the word, and Cases 21 and 22 as cases of epileptiform convulsion, depending, in all probability, upon congestion of the brain—cases, that is to say in which it is not easy to point to the non-recurrence of the convulsion as a proof of the efficacy of the treatment, simply because the convulsion does not recur in such cases in the same sense as that in which it recurs in simple epilepsy. Indeed, as is well known, the convulsion does not return in a great number, if not in the majority of such cases. And thus, by deducting these five cases, the seventeen cases of epilepsy "cured under treatment" become reduced to *twelve*. Nor is Case 20 altogether satisfactory. This is that of a lady, *æt.* 51, who had *one* attack four or five months after the termination of the menstrual epoch, for who shall say that this convulsion was epilepsy, in the ordinary sense of the word, or that the non-recurrence of the attack may not have been due as much to the system having adapted itself to the new state of things as to the medicine. Nay, exception may be even taken to Case 6, for the patient here was in her sixty-third year at the time of the first attack; her conformation was apoplectic, and the attacks themselves were evidently more of an apoplectic than of an epileptiform character. In this case, however, these attacks recurred at frequent intervals for the next ten years, during which time she did not take the zinc; and they did not recur, except in three instances, in two of which they were very slight, after taking the zinc. It is a case, indeed, in which the influence of the treatment would seem to have been very beneficial; but it can scarcely be considered as a case of ordinary epilepsy; and thus, taking these two cases as doubtful, the twelve to which the seventeen had become reduced dwindle down to *ten*, namely, Cases 7, 9, 10, 11, 12, 13, 16, 17, 18, 19. Now, in order to be able to form an opinion respecting these ten cases, and be quite satisfied that the cure was really caused by the zinc, it will be well to state what were their essential particulars.

CASE 7.—A girl, *æt.* 8. Four years ago she became giddy and fell, but without losing her consciousness or being convulsed. After this, such attacks occurred several times a day, with the exception of certain intervals, when they appeared to be arrested by the use of nitrate of steel. Two months before her visit to M. Herpin, she had an attack of an epileptic character, and in the week immediately preceding she had three such attacks. The oxide of zinc was given for a month, and thirteen years afterwards the report is that she had had no other attack.

CASE 9.—A lady, *æt.* 34, who had suffered from frequent attacks of vertigo during four years. For these she took the zinc. Seven years later, after having had none of her former attacks in the interval, the giddiness returned, and at last, after several partial seizures, she had a complete epileptic fit. *On this occasion powdered valerian was the remedy used.* Nine years later, there had been no recurrence of the fits.

CASE 10.—A lady, *æt.* 31, who had suffered for ten years from occasional attacks of vertigo and petit mal. A week after commencing the treatment, these attacks had diminished; a few days later they had disappeared; ten years afterwards, or thereabouts, they had not returned.

CASE 11.—A girl, *æt.* 18, suffering occasionally from partial cramp in one of the hands, with a feeling like aura extending up the arm, and once or twice from an attack which seemed to be epileptic. These symptoms had been present for three or four weeks. The day after beginning the treatment, she had a regular attack of epilepsy; at the end of two months, and likewise at the end of five months, she had several threatenings. Six years later, she continued perfectly well in the interval.

CASE 12.—A boy, *æt.* 12, who had had convulsions when at the breast. Within the three months preceding the adoption of the treatment by zinc, he had had three attacks of epilepsy. Six years afterwards he had another attack, *the first since the time when he had taken the zinc.* For this he was again put

under the same treatment, and five years later M. Herpin reports the continued absence of fits.

CASE 13.—A boy, *æt.* 14½. The first attack, which was incomplete, was after having been startled by the explosion of a cannon; the second occurred a year later without any obvious cause, and the third at the end of six months after the second. At this time the zinc was prescribed. Two and a half years later the fourth attack occurred, when the zinc was resumed. Six months afterwards he had an equivocal attack of giddiness. Six years later there had been no return of either giddiness or fits.

CASE 16.—An intemperate man, *æt.* 21, who within a month had had two attacks of epilepsy, five partial attacks, and much giddiness. Abstinence from wine and valerian was the treatment carried out for thirty-seven days, and after this the zinc was given for nine months. During the first thirty-seven days he had five partial attacks and a good deal of giddiness; during the treatment by zinc his only annoyance was an occasional feeling of giddiness. Thirty months after this time he had a partial attack and a return of the giddiness; and two months later a complete attack and three partial attacks. At this time the zinc was resumed. Two days later he had three complete and three incomplete attacks, *when the zinc was abandoned, and the ammonio-sulphate of copper given in its place.* Six and a half months afterwards, feeling some giddiness, the first symptom of the kind since the last report, he was put under a course of *zinc and extract of valerian*, in equal quantities, for seventy days; and three years later there had been no symptoms of relapse.

CASE 17.—Another intemperate man, *æt.* 28, who had had three epileptic attacks within the previous four days. For these symptoms the treatment by oxide of zinc was adopted. A fortnight afterwards he had again four attacks within four days, and a month later one of a much milder character; at this time *the zinc was changed for the ammonio-sulphate of copper.* Three years later, after an interval of complete freedom since the last report, he had four attacks within four days, *when the treatment by copper was resumed.* A year later there had been no return.

CASE 18.—A girl, *æt.* 13½, suffering apparently from tubercle of the brain, and dying six months afterwards from general tuberculization. Every week, for six weeks before M. Herpin took charge of the case, there had been a partial attack of epilepsy, preceded by aura. After taking the zinc there was only one such attack, with a little giddiness.

CASE 19.—A child, *æt.* 9, who had had a partial attack of convulsion, without falling or losing his consciousness. The treatment by zinc was at once adopted. A month later, there having been nine such attacks in the interval, *the zinc was changed for valerian.* Eleven days later there had been six attacks, when the valerian was laid aside and the zinc resumed. Forty-two days later, there having been eight attacks in the interval, *the zinc was changed for the selinum palustre.* Thirty-eight days afterwards there had been only two attacks; then, after a complete interval of five years, there were two or three of the old attacks on two successive days, and after them a regular epileptic seizure. At this time the zinc was the treatment adopted; and eleven months afterwards there had been no regular seizure, and only occasional threatenings, with a few partial attacks during the earlier weeks of the treatment.

Now, on looking over these cases, it is not a little difficult to feel thoroughly satisfied as to the perfect efficacy of the oxide of zinc as a remedy for ordinary unmistakable epilepsy. It is difficult to do this, because the cases themselves are not sufficiently marked, or in other words, the habit of convulsion is not sufficiently confirmed, to allow us to say what would be their natural course. For, assuredly, he must know little of this class of cases, who does not know that very suspicious convulsion-symptoms may recur repeatedly, and subside suddenly or gradually; or that epilepsy itself may recur more than once and yet not become a habit. Even M. Herpin himself relates two cases of epilepsy coming to an end without any special treatment; and, on the other hand, he gives us the history of nine others, where the malady was really confirmed, and where, according to his own admission, the oxide of zinc was perfectly ineffectual. Nor must it be forgotten that on more than one occasion the symptoms

subsided as suddenly, or almost as suddenly, under the use of valerian or selinum palustre—under the use of remedies, that is to say, which can scarcely be supposed to have any very wonderful virtues.

It would appear, moreover, that M. Herpin himself has become less confident as to the efficacy of oxide of zinc than he was in 1852, when he wrote the work from which the previous information has been taken. Thus, a more recent statement is—"Que l'oxyde de zinc, ne cessant point d'être convenable pour les enfans et les vieillards, échoue très souvent chez les adults." M. Delasiauve, who quotes these words,* tells us that the principal reason for this change of opinion was the absolute failure of an experiment in the Bicêtre, in which one of the physicians of that establishment, M. Moreau, treated eleven adult epileptics in every particular after M. Herpin's method. M. Delasiauve also tells us that M. Herpin now gives the preference to the ammonio-sulphate of copper in the treatment of adults.

Nor am I able to obtain any more satisfactory evidence in other quarters. As for myself, I may say roundly that I saw no evidence of any good results from the use of zinc in nine cases in which the metal was given after M. Herpin's plan; and that I am confirmed in this opinion, so far as epilepsy is concerned, by the result of a much more extended trial at the Westminster Hospital, by my friend and colleague, Dr. Marcet.

ART. 35.—*Lactate of Zinc in Epilepsy.* By Dr. HERPIN.

(*L'Union Médicale*, No. 121, 1857.)

Dr. Herpin, it appears, is now disposed to prefer the lactate to the oxide for this malady, and he relates some cases in illustration of the good effects of the new remedy. As yet, however, the evidence is on a much smaller scale, and not a whit more conclusive than that which has been analyzed in the last article.

ART. 36.—*On the Use of Phosphate of Zinc in Epilepsy.* By Dr. BARNES, Physician to the Dreadnought Hospital.

(*Lancet*, Jan. 30, 1858.)

During the last two years, Dr. Barnes has used this remedy in several cases of epilepsy, and, as he thinks, with success. He is disposed to think that there may be an undue waste of brain-matter in epilepsy, which may call for the use of phosphorus, and that the phosphate of zinc may therefore be beneficial in a double sense. He prescribes dilute phosphoric acid as the proper solvent, and adds tincture of calumba or gentian, or iron or quinine, according to circumstances.

ART. 37.—*A case of Epilepsy in which Tracheotomy was adopted.* By Dr. OGLE, Assist.-Physician to St. George's Hospital.

(*Lancet*, Jan. 2, 9, and 16, and May 1 and 8, 1858.)

This case is related at great length. It had been under Dr. Ogle's care nearly twelve months before the operation was performed, and during this time ordinary measures had been employed with little benefit. The operation was performed by Mr. Holmes. Dr. Ogle thinks that the benefit was well marked and quickly marked; but we question whether all will be disposed to agree with him in this opinion.

CASE.—"Charles E., æt. 16, of good bodily conformation, with head of proper size and shape, and with light colored hair and light eyes, came under my care July 3d, 1855. He was an only child of a widow.

"*Previous history.*—The patient had been subject to 'fits' for the past five years, which were caused, it was thought, by a fright, the house in which he lived being supposed to be on fire. He was never known to have had a blow on the head or elsewhere, and was not known to have had 'scorums.' It was

* *Traité de l'Epilepsie*, 8vo., Paris, 1854.

also said that he had never been subject to vomiting, or to cough, or to hæmoptysis, but at times he had been much subject to pain in the head, chiefly the vertex. He had never lost power in his limbs. The bowels were said to be generally relaxed. The mother strongly denied that her boy had been addicted to any sensual habits of a particular kind. He had had the fits once or twice a week for some time, when he was taken to one of the London hospitals, where he fretted greatly on account of his separation from his mother, and was treated with blisters on the forehead, and, according to his mother's statement, was strapped down, owing to frequent delirium. Since he came out of the hospital he had had the 'fits' every night. His memory had been getting worse, and very often, his mother says, he had lost his mind, and would laugh foolishly when addressed, but not answer.

"Nature of the 'fits,' according to the account of friends.—They came on at first once in three months, and just before their occurrence the boy was wont to run out of the house, knowing that they were coming on, and saying that 'the house was on fire.' After the fits, he generally sleeps, and often has pain in the head. Sometimes, but not always, during the fits, he foams at the mouth, and sometimes bites the tongue, and often voids the urine, but not the feces. He always goes 'black in the face' during the most severe attacks, and is much convulsed: to use his mother's expression, 'going in all manner of forms.' He does not scream in the fits, but 'seems as if he would scream if he could.' He always has a fit directly he goes to sleep, either by day or by night. The attacks last from one or two minutes to a quarter of an hour, the smaller ones being unaccompanied by blackness of the face or much struggling, being apparently strictly the 'petit mal.'

"Present symptoms (at time of the above date).—The patient was in a very weakened state. The pulse was below the ordinary number per minute, and feeble. He was very obtuse in mind, playing with his hands and trowsers unmeaningly. The muscles of the eyeballs and face were natural in action, and there was no altered sensibility of the skin in any part of the body, and, beyond general debility, the muscles of the extremities were unaffected. The pupils were much dilated, and acted but sluggishly. The various thoracic organs were natural. The bowels were relaxed, and the patient complained much of frequent thirst. The tongue was rather furred."

Between this time and the 17th of May, in the following year, when the operation was performed (it is unnecessary to follow Dr. Ogle in the copious details which he gives), ordinary measures were tried, with little benefit. Of the operation and the after period, the account is as follows:—

"May 17th, 1856. The boy's face was very pale. He would scarcely answer any questions, but would smile idiotically at times; he walked very feebly, but not with any less power on the one side than the other; he had had a very bad night, and no sleep until 12 o'clock, and then, as soon as he fell asleep, he went off into a fit, which continued about a quarter of an hour; and between 12 and 2 o'clock, he had four bad fits. He afterwards had other attacks, when his mother was asleep, and again more between 6 and 7 o'clock A. M., and has had another to-day since 10 A. M., but without any biting of the tongue, lips, or thumbs. He seemed revived by wine given to him. The bowels were open yesterday, but no worms were seen; the pulse was very weak; the pupils of the eyes were natural; the appetite was pretty good. 3 P. M. The patient has had two more 'strong black fits.' He underwent the operation of tracheotomy at 3 P. M. He was long in getting under the effect of chloroform. The eyeballs were drawn down, &c., as before. There was a spasmodic attack of the face and right side of the body, and several times rigidity of the limbs, so that the patient several times slipped down in the chair. After the operation, the pupils became contracted. No lividity or sickness, or priapism, or voiding of the urine was noticed. On his recovering, at one time there was great pallor, and the pulse was almost gone during a little choking which came on, but the pulse again rallied, and remained very good, and the pupils natural. He was quite sensible, and smiled once or twice. Whilst he was breathing through the tube, the working of the *alæ nasi* went on just as if air passed freely through the nostrils. I sat with him until half past 5 P. M., and during this time

there were occasional violent expirations and attempts to cough, and a quantity of bloody mucus was shot out of the tube, but generally drawn in again. No hemorrhage came on. 8 P. M. Much the same. He has had four fits, the first one with slight lividity (as observed by the nurse), but not nearly so bad as most previous ones. Mr. Wilbe, the resident dispensary officer, saw him in one, but although severe, he said there was no lividity, no foaming, and no biting of the tongue or lips, &c. The patient took a little beef-*tea*, and swallowed as well as usual. There was no hemorrhage. He had been crying once or twice, and again did so whilst Mr. Holmes, Mr. Wilbe, and myself were present, at the thought of his mother being away at night. We left him, seeming to be, on the whole, very comfortable.

"18th.—Quarter to eight A. M.: Found that he had had a very bad night, and the nurse stated that he had had twenty-five fits between the hours of two and eight o'clock this morning. These were very bad, but were not attended by any blackness of the face. The face was very red in color, and the upper part of the left eyeball quite blood-red. At one time, the patient appeared violent, and wanted to bite things. The last fit was twenty minutes before my visit. The pulse was 85, and he had taken beef-*tea*. The skin was warm, but the feet rather cold. The tongue was furred. No thirst was complained of, but the boy cried much. The respiration was noticed to be rather difficult, and as the inner of the tracheal tubes could not be removed, owing to coagulum, &c., both of the tubes were taken out, and much bloody mucus and coagulum found within. There was well-marked emphysema of the neck on both sides.—Half-past nine P. M.: The boy seems tranquil and easy. Pulse natural, and no thirst. Tongue very furred, and bowels not open. The face was natural, and at times smiling. The feet were warmer. The respiration was the same as my own in number. He had had milk and eggs and bread and butter. When lying on the left side, he seemed inclined to cough, but not on the other, according to his mother's statement. The string of the tracheal tube had been tightened as the neck had shrunk. Since the morning, he had had four fits, the first being the worst, *but in no case was any blackness observed*, although the face got very red. Much clotted mucus came out of the tube.

"19th.—Reported to have had five or six hours of comfortable sleep, and this morning had been removed down into his former room, which was a cellar (much to my annoyance). Had only had three fits in the night, which were very mild, excepting the first one, when the conjunctiva at the upper part of the left eye was very blood-shot. The nurse said that the 'mouth had not been put out of shape.' Slight bronchial mucous rales were observed in the fore part of the chest by auscultation, but no pain or thirst was complained of. The tube had been frequently removed from the trachea in the night to be cleaned. The pulse was 85, and rather sharp. The bowels not open. Ordered a draught with rhubarb and magnesia. The milk, eggs, and bread and butter to be continued.—Half-past eight P. M.: Rather fretful, as he has been every day towards evening, according to the nurse. Pulse quiet. Breathing a little troubled, but eased on removing and cleaning the tube, which contained some thick mucus, though it had been cleaned one hour before. Tongue furred. Smiles and tries to speak when told. Thumb-nail very sore from biting. Wound suppurating healthily. Since morning, he has had *three fits*, of which the first was the worst, and the face became dark red, but by no means black; the others were very mild. The mother repeats that after the fit the breathing was very violent, both inspiration and expiration; but whilst in the fit, he could not breathe generally. To go on with eggs and milk and beef-*tea*, &c.

"20th.—Quarter to twelve A. M.: Has had six hours' good sleep, but had *five fits* in the night, but in none was he more than very red in the face. As before, the right side was chiefly affected. Has also had *two fits* this morning, but they were very slight indeed, simply transient redness of the face. Pulse 80, weak. Rather depressed countenance. Tongue, as before, rather furred. Bowels not opened with draught yesterday. Wound suppurating; redness around not so great. Rather thirsty. To go on with eggs, milk, beef-*tea*, and one ounce of wine diluted; raspberry vinegar. An ounce and a half of com-

pound senna draught immediately.—Half-past nine P. M.: Seems quite tranquil. Pulse 85, with tolerable firmness and fulness. Tongue cleaner. Bowels open three times; motions rather offensive and watery; the first motion, two hours after the draught; had slight abdominal pain at the time. Skin warmer. Not very thirsty. Liked the raspberry vinegar much. Had the nourishment and wine diluted at intervals. The nurse says he is more refreshed and better with the wine. Breathing comfortable. Feet warm. Had no fits since morning.

"21st.—Ten A. M.: Had *eight or nine fits* in the night whilst asleep, two or three being rather severe, and *three* this morning, which were very slight; was *not* dark in the face in any, and there were no contortions of the face, the right side of the body being chiefly affected. The nurse and mother both consider the fits since the operation to differ from those before it, *by the want of any noise at the throat both before and in the fit, the want of contortion, the want of any lividity of the face, or of any very deep redness of the eyeball*, which often were like balls of blood, as they describe it, *and by the rapid convalescence after the attack*. The patient is reported as being stronger this morning. Pulse not so strong as last evening. He was restless in the night, and had about three hours' sleep; somewhat thirsty; tongue rather furred, but not much; has slight cough at times, and then 'gets up thick mucus.' Has had an ounce of wine along with other things in the night.—Ten P. M.: Has been much more cheerful all day. Pulse natural, 85; tongue clean; skin warm; appetite good, and had an ounce and a half of wine and part of mutton chop, with eggs and milk; something every half hour. Nurse says the tube requires more frequent cleaning; the mucus is more tenacious. Had only one very slight fit since morning, in which no lividity or contortion of the face existed; only the limbs were affected, and he was out of the fit almost directly. Seen by Mr. Holmes in the attack. Not very thirsty; bowels not open since last night.

"22d.—Half-past 11 A. M.: Had a very bad night, and ten or twelve fits; some very strong; in one he forced the tube out about 12 o'clock, and Mr. Wilbe had to be sent for to return it. He has had also three this morning, and I found him just recovering from one; the face was entirely suffused, but nothing more. He seemed very heavy and stupid afterwards, and inclined to sleep. Pulse natural; bowels not opened, and had taken an ounce and a half of compound senna mixture; had had wine, &c., in the night. In no case was there lividity of the face. The mother and the nurse feel assured that the boy did not pull the tube out in any way, but that it was forced out during the convulsive efforts.—Half-past 9 P. M.: Had two slight fits only since visit, and has taken wine, two ounces of mutton, two eggs, milk, and beef-tea. Bowels open twice; tongue clean; pulse quiet, soft; much thick mucus passed during the day. Can speak in a low tone, which he says he could not at first do at all. Smiles, and is cheerful. Face with a healthy florid look, and natural and lively expression. Protrudes tongue promptly.

"23d.—Half-past 10 A. M.: Had not so good a night, and had ten or twelve fits; none with lividity or alteration of the facial muscles. Bowels not again open; tolerably cheerful. Repeat the senna mixture, wine, &c.

"24th.—12 A. M.: Had the best night which he has had since the operation, having had only *five* fits, and these not very severe; but he had one lately, and is now very inactive and heavy, and will hardly put out the tongue. (*Has never bitten his tongue or lips since the operation.*) Lies half asleep, with the right eyeball rather everted; face slightly suffused. After about five or eight minutes, during my visit, he gradually recovered. He had been very excited two hours before, requiring great force to hold him down, owing to the pain and difficulty attending the nurse's attempt to get the tube out, which she had not done since yesterday early. She had only cleaned it out by means of the probe, &c. Whilst present I saw him in a fit; it began by his raising himself up in bed; he quickly became quite bright red over all his face, but was not the least black; he stared violently, with very dilated pupils, but did not seem to know any one; the pulse was very quick; breathing still going on. After about four minutes the attack gradually subsided, and he lay rather

heavy, and yawned; the pulse became natural, and he had some wine and water. The cleft of the operation is so deep and so closing, that the inner tube can apparently not be got out. Mr. Holmes wishes it to be left in, and to be cleansed by the probe, &c.—9 P. M.: Very cheerful, and sits up in bed; wound suppurating; tube very clogged up; speaks freely, but not nearly so well when the tube is somewhat cleansed; pulse and skin natural; had meat twice, with wine and other things; bowels open once freely with senna draught to-day; the draught yesterday had no effect. *Several thread-worms were seen to-day.* I had ordered a tubal dilator at Savigny's—one which I had had constructed, and wished to have tried, but it had not yet come. A much longer tube was required than the one used, as alluded to in Mr. Holmes' note, to prevent the fluids from the outer wound getting down into the tube, in order that the inner one may freely be removed. Thinking that the tube might be cleansed by forced expiration, the mouth and nostrils being stopped, I wished the patient to adopt this method, but for some reason or other he was unable.

"25th.—10 A. M.: Appears very cheerful; had only *three* light fits in the night when asleep, and again three of a similar description this morning. The mother declares he was not unconscious in any of them, and that in coming out of them he says 'Oh, dear!' He has slept five or six hours in the night, and again an hour and a half this morning; bowels open twice this morning. To go on with wine and other things.

"26th.—Half-past 10 A. M.: Sitting up; he seems very comfortable; has only had *two* fits in the night, and they were small. Nurse says he was not unconscious in any of them. The tracheal tube was quite patent, as shown by the probe passed down, also by fine air coming out of it, and mucus likewise on his coughing, but *yet he can speak in a half whisper.* Cough rather troublesome.—8 P. M.: The boy walked to my house, a distance of three-quarters of a mile, which he ought not to have done. He said he felt poorly, and seemed weak; had only one slight fit since the morning.

"27th.—Has had rather a bad night, with eight or ten fits, but none very strong; several to-day, but his mother declares that he is out of them directly (in a minute). The tube very full of mucus, but the air passes through; cough bad; bowels not open; tongue clean. Senna draught, with tincture of senna. To be repeated if necessary.

"28th.—4 P. M.: Had eight or nine fits in the night, and several to-day, but out of them in a minute. The tube was taken out by Mr. Holmes, and nothing left in the aperture, until a longer tube, to lie with its shield on the skin, be made by his directions. Never passes urine in his fits since the operation; bowels opened twice with a second draught; appetite indifferent to-day; cough not quite so troublesome all day as it was in the night.

"29th.—12, mid-day: Had two or three small fits in the course of yesterday afternoon, and eight or nine in the night of the same character; seems stronger, and is going out to see the people 'come up for the illumination.' Mr. Blaise is making a single large tube, to be ready in the morning.

"30th.—Half-past 9 A. M.: Nurse says he had only *two* fits since I saw him yesterday, and they were slight ones. The large tube was brought and introduced into the tracheal opening by Mr. Holmes.

"31st.—Did not see him for above a week from this date, as I was out of London; but the following list of fits which the boy had was kept by the mother by my directions. The fits were all of the 'slight kind:'

"June 2d.—In the day, two fits; in the night, three fits.

"3d.—In the day, one fit; in the night, four fits.

"4th.—In the day, three fits; in the night, five fits.

"5th.—In the day, one fit; in the night, four fits.

"6th.—In the day, one fit; in the night, six fits.

"7th.—In the morning, two fits; in the night, eight fits.

"8th.—None in the day; in the night, three fits.

"9th.—In the night, four fits; in the day, six fits.

"10th.—In the night no fit; but this morning had one of the slight form. Recommended the occupation of netting to him. Going on with large doses of

quinine and iron, purgatives, and at times turpentine injections, as plenty of worms were passed.

"12th.—Two capital nights, and no fits since Tuesday morning.

"13th.—The tube was removed, but could not be returned (though it had only been out for half a minute) without chloroform. During the administration of chloroform the boy had a slight attack of convulsions (doubtful whether from chloroform or not).

"14th.—The tube was replaced with the greatest ease. No fits since Tuesday, 10th. Fit in the course of the day.

"15th.—One fit.

"16th.—Two fits.

"17th.—One fit. Worms seen. Ordered turpentine enema.

"18th.—No fit.

"19th.—One fit. Worms came away in a lump. Repeat enema.

"20th.—One fit.

"21st.—No fit. No worms seen. Sleeps at night, and never wakes. The mother says 'she does not know what to make of herself when she gets up in a morning, now that she gets so much sleep; she is so delighted.'

"22d and 23d.—No fits.

"All the above fits were very slight, as the mother says he 'only goes white for a moment, and is then all right.' Nothing more decided than this. His mother calls the attacks 'faintnesses,' which last generally about two minutes, during which he says 'mother,' and heaves a sigh, but does not lose consciousness, and then says 'I'm better.' If he be on the other side of the room when the fit comes on, he is generally about right by the time his mother gets to him. The fainting attacks are generally in the morning when he gets up; *never* at night. The boy says he always feels better when 'wind and air and heat' is coming to him. Pulse better; no cough; tube in trachea all right; no worms seen in the evacuations.

"24th.—One fit. Repeat mixture and turpentine enema.

"25th.—No fit.

"26th.—No fit. Repeat mixture.

"27th.—One fit and two faints directly after 'turning the mangle.' No worms with injection. Bowels not open; slept from half-past 10 to 8 without waking. His mother says 'she now lives another life.' Repeat mixture and powder.

"28th, 29th, and 30th.—No fits.

"July 1st.—No fit; no worms; 'feels he's getting much stronger.' *Always feels uncomfortable and sinking when the tube is out for cleaning.* Repeat mixture.

"4th.—One fit. Rode yesterday to Camden Town, and walked part of the way back. Had another injection.

"8th.—No fit.

"15th.—One fit; occasional worms. Got up this morning and went out without food, and 'fainted right off.' Pulse good; no wine and very little meat of late.

"16th.—One fit.

"17th.—One fit. Repeat injection and mixture.

"The above fits are only faintings, and he is quite out of them again in about five minutes. His mother says he does not lose his senses completely in them, and only sometimes knows of it beforehand. It would appear as if they were from not eating sufficient, as he scarcely touches anything to eat in the morning, and never has the fits in the other part of the day, when he eats more. Tongue clean; no worms; motions sometimes light, sometimes black.

"24th.—Offensive motions brought away with injection, but no worms. Repeat mixture.

"25th.—On walking quickly for a time, fainting came on.

"26th.—Pulse 29. Fainting again this morning.

"Arrangements were made for the boy's going to Brighton Infirmary—the tube being still in the trachea—for general health.

"29th.—Went to Brighton with his mother, and on the 30th into the infirmary.

During his stay his mother visited him, and he sent home letters, two of which I have, dated August 1st and 5th, both speaking of his being comfortable, and getting well, &c. On the week following his admission into the infirmary, the mother went again to Brighton, saw him, and the tube in the trachea was then all right, and the boy much about the same, according to her account. Two weeks later the mother went down, and to her surprise found the wound healed (as I had told her it was still kept open), and the tube out. When she saw him he was then very ill, but better, she was told, than what he had been. He had several fits whilst his mother was with him, which was for four or five hours. These fits were very bad ones, the ears getting red and the face dark, and lasting about ten minutes; he also lost his senses during them. She understood from the patients that he had been delirious, and was strapped down two days and nights, and had had very severe fits. Previous to the removal of the tube, I had heard from Dr. Ormerod, under whose care in the infirmary the boy was, that he had 'five or six minor epileptic attacks every day.' Dr. Ormerod thought him worse than he was when he entered the infirmary. On hearing then that the tube had been removed, and that since then his mother had seen him in very bad attacks, I wrote to Dr. Ormerod, who very kindly sent me word again about him. He said that the tube was 'after a while evidently keeping up irritation, and a most striking improvement ensued on its withdrawal. Wishing to have the boy under my immediate notice, I sent the mother to Brighton to fetch him back, August 30th. It seems that on the day of return he had no fit; but on the evening of Sept. 1st he had a slight one, which lasted five minutes. His mother asserts that he did not completely lose his senses in it.

"On September 2d I gave him again quinine and sulphate of iron. The voice was quite natural, and the wound in the neck firmly healed. The pulse was good, the tongue clean, but the appetite was still very bad in the morning. No worms were seen in his natural motions, but under further use of strong purgatives and enemata, they were passed. What the boy appeared to want, as no more very severe attacks came on, was regular employment. This, however, he could not get; for although one or two people took him as errand-boy, they were frightened by his slight attacks, and obliged to part with him. After that I lost sight of him altogether for some time. At last I saw his mother, who said he had had on several occasions heavy attacks, and *wanted the operation to be again performed.* However, as by acknowledgment on the patient's part, and by his description, I felt sure the attacks were not nearly so severe as they had been before the operation, although the tube was kept in so short a time, I could not consent to it. Indeed, there was no laryngismus threatening life, limb, or mental powers, which demanded our having recourse to tracheotomy. For several months I had again seen nothing of the patient except on one occasion, when I accidentally met him in the street, carrying a basket of vegetables. He then said he at times had severe fits, but he was a marvelously different being from what he was during the few days before the operation. Again I lost sight of him for several months, until November 26th last, when, having been seen by Mr. Holmes, he was sent to me with his mother. He had grown much, but was very thin. He had had two or three situations, but had been unable to retain them, by reason of the fits, which now were nearly all of the smaller kind. They lasted about five minutes, during which time he went 'as pale as a corpse,' and lost his consciousness. One always came on in a morning. Contrary to what took place some time ago, the attacks but seldom came on in the night. His mother had not seen any worms of late, but thought, from his ravenous appetite, that he must have them. She volunteered observations as to the good of the operation, and was willing to have it again performed; but as there was no laryngismus in the attacks, and apparently scarcely any convulsive movements, such a step could not be advised. The epilepsy had almost entirely assumed the *syncopal* form."

ART. 38.—*A case in which Death happened in an Epileptic Fit after Tracheotomy.*
By Dr. ORMEROD, Physician to the Brighton Hospital.

The following case is appended to the preceding case by Dr. Ogle. It was

communicated by Dr. Ormerod to Dr. Ogle as an objection to the practice of tracheotomy in epilepsy.

CASE.—“Henry B—, æt. 55, came under my care at the Brighton Dispensary, in January, 1852, with disease of the larynx. He was a tall man, of an extremely cachectic appearance, but he said that he had been quite healthy and well until two months before. Then came sore-throat, gradually increasing, with some hæmoptysis during the last three weeks. He spoke with great difficulty, but there was no notable obstruction in breathing or swallowing. There was nothing to be seen on examination of the fauces, but the attempt to examine them caused distressing retching. There was no dulness on percussion between the clavicles; auscultation elicited no reliable results.

“For a month he steadily improved under the use of blisters, spermaceti mixture, cod-liver oil, and tonics. Then his breathing became more difficult, and he had a severe settled pain in the throat, for which Mr. Fuller, the house-surgeon, applied a twenty-grain solution of nitrate of silver to the epiglottis, with decided relief. The dyspnoea, however, consequent on the operation was so severe that I did not dare to repeat the operation.

“He now became rapidly worse; his respiration grew more difficult, the breath having a horrible fætor. Still he was able to swallow without difficulty. Blistering failed to give him any more relief, and it was deemed necessary, on account of his urgent dyspnoea, to open the windpipe.

“Mr. Fuller accordingly made an opening through the crico-thyroid membrane with great and immediate relief, at 8 P. M., on March 1st. At 10 P. M., while I was with him, the tube being clear, but having shifted a little from the mesial line, he had a slight epileptic fit. He speedily recovered, and at midnight was lying asleep, breathing easily through the canula. At half-past 2 A. M. he had another epileptic attack, in which he died. I heard afterwards, that about a month before his death, he had a slight fit of an uncertain nature.

“On post-mortem examination of the body, we found a ragged pouch containing a fetid putrilage, opening above on the right side of the rima glottidis, communicating below by sinuses with an ossified and partly necrosed cricoid cartilage. The chordæ vocales were œdematous. The opening had been made clear from the seat of the disease.”

ART. 39.—*On the Treatment of Chorea.* By M. TROUSSEAU.

(*Gazette des Hôpitaux*, No. 11, 1858.)

Although it is true that chorea left to itself may at last become cured, yet the intervention of medicine is of avail in preventing serious phenomena, moderating accidents, and abridging the duration of the disease. Among the means employed in its treatment cold baths are efficacious, acting probably in part as sedatives, and in part as tonics, as also, as when used in the form of sudden immersion, by the shock they induce. At all events they constitute an inoffensive means, which, in combination with other treatment, may do good service. M. Trousseau cannot understand why the sulphurous baths should meet with such favor at the Hôpital des Enfants. The gymnastic treatment has also been much followed there, but this can only be regarded as an accessory means, useful towards the decline of the disease. Moreover the means of putting it into force are not readily met with, and M. Trousseau has found a very useful substance in the employment of a metronome, the number of the oscillations of which can be regulated, each being indicated by a clicking sound. If one of these be placed before the patient, the sight and sound of the oscillations become of great utility in assisting him in regulating the movements of the whole or a part of the body. It is, however, only an adjuvatory means, and is more useful in the case of tic, the patient being directed to produce his tic voluntarily at the same time the click of the instrument is heard. He becomes fatigued by this voluntary effort, and the tic is speedily modified, though rarely cured. M. Trousseau has, since 1841, been in the habit of treating chorea methodically by the syrup of sulphate of strychnia, which is preferable to nuxvomica itself. He dissolves five centigrammes of the sulphate in 100 grammes of simple syrup, i. e. about twenty-five teaspoon-

fuls, so that each teaspoonful contains two milligrammes, i. e. one thirty-fifth of a grain of the sulphate. At first a teaspoonful is given daily between breakfast and dinner, and if no effects are produced in two or three days it is given in the morning fasting, and at bedtime. The dose is, after awhile, increased to two teaspoonfuls, to three, or even to four, continuing it until stiffness of the neck and jaw and slight convulsive movements of the limbs are produced. The choreic movements now rapidly diminish, and sometimes after fifteen or twenty days of treatment the disease seems cured. Prudence must be observed in gradually increasing the dose, but with this accidents are not to be feared. The convulsions that are produced must not alarm us, as they are never dangerous if not carried too far. When the syrup has been taken for some days, stiffness of the jaws, headache, disturbed vision, vertigo, and itching of the scalp come on. The observation of this last sign, which the patients compare to pricking with small needles, is the safety-valve in the use of the medicine, as it is one of the earliest signs of its operation. When the children are standing they are seized sometimes with sudden sharp cramps, which oblige them to catch hold of any object. They should then be laid down. It is impossible beforehand to state the dose of strychnia that may be required; for very different effects are produced even by the same dose in the same child. With this means others may be used, accordingly as the patient is plethoric, chlorotic, or hysterical.

ART. 40.—Results of Tracheotomy in Croup at the Children's Hospital, Paris, during 1856. By M. ANDRÉ.

(*Bull. de Thérap.*, May 30, 1857; and *American Quarterly Journal of Med. Science*, Jan., 1858.)

The following interesting table is taken from the thesis of M. André:—

AGE.	No. of Patients.	DEATHS.		RECOVERIES.	
		Boys.	Girls.	Boys.	Girls.
From 15 months to 2 years . . .	6	2	4	...	...
" 2 years to 3 years . . .	9	4	3	2	...
" 3 " 4 " . . .	13	5	4	4	...
" 4 " 5 " . . .	11	6	3	1	1
" 5 " 6 " . . .	6	3	1	1	1
" 6 " 6½ " . . .	3	1	1	...	1
" 7 years . . .	2	...	1	...	1
" 8 " . . .	2	...	1	1	...
" 9 " . . .	1	...	...	1	...
" 9½ " . . .	1	...	...	...	1

From this table it appears that many successful cases of tracheotomy have been observed, as nearly one-third of the patients recovered. The most notable success has been obtained with children from nine to nine years and a half old, and then with those children who were from five to six years old. The least satisfactory results were observed from fifteen months to two years, for here we have six operations and six deaths. All the children under two years are to be found in the columns of deaths; and all those who died, except two, were just a little more than two years old. M. André thinks that these facts may be explained by the greater amount of resistance with the older children, both as regards the disease and the operation. He also conceives that debilitating means, as leeches, blisters, &c., should be sparingly used, so as to husband the strength for tracheotomy.

ART. 41.—Cold Applications in Pneumonia and Pleuritis. By Dr. NIÉMYER.

(*Prager Vierteljahrsch.*; and *Dublin Hospital Gazette*, Jan. 1, 1857.)

Professor Niémyer, in his clinical communications, recommends cold to be

applied externally in the treatment of pneumonia and pleuritis. The results of extensive experience in the Hospital of Magdeburg have confirmed him in the belief that cold applications are not merely devoid of danger, but that they are as efficacious as in inflammations of external parts. The cold produces marked amelioration, and the patients, even children, urgently request that the application be renewed as soon as it has become warm.

Professor Niemyer does not attribute to cold applications the power of cutting short the above named diseases; but he believes that the exudation process ceases at an earlier period; that the fever is sooner brought to a close; and the patients are thus frequently enabled to return to their occupations seven or eight days before they could do so under other treatment. Neither metastasis nor catching cold has been noticed as a consequence. In late stages of pneumonia and pleuritis (acting on the fact established by the best pathologists, that there is diminution of the blood-corpuscles, especially in old persons), he administers ferruginous remedies with great advantage.

ART. 42.—*Asthenic Pneumonia and its Treatment by Quinine.* By Dr. CORRIGAN.
(*Dublin Hospital Gazette*, Dec. 16, 1857.)

In a clinical lecture recently delivered, Dr. Corrigan says:—

"I cannot allow this lecture to terminate without bringing under your notice a form of pneumonia and of pleuripneumony that is now, I may say, epidemic among us—asthenic pneumonia. It attacks all ages. It proves fatal either directly in the first stage of congestion, in which it is, indeed, a very fatal disease, the patient dying while the lung is gorged and dark, from which, on a former occasion of noticing it, I called it blue pneumonia, or it passes from the first into the third stage, scarcely showing at all the second or hepaticized stage. Instead of being seated, like ordinary pneumonia, in the lower lobe, it is more frequently found in the upper lobe. Its symptoms are as peculiar as its pathology.

"It is not accompanied with the peculiar calor mordax of skin which is so characteristic of inflammatory or sthenic pneumonia, but, on the contrary, the skin is of its natural temperature, or cooler than natural, and the face rather sallow than otherwise.

"Pain is variable, and appears to depend altogether on the degree of inflammation of pleura; most generally, however, it is not much complained of, the patient describing shortness of breath as his prominent symptom.

"One of the most remarkable features connected with it is, the absence, for several days, of any expectoration, and even when this does appear, its being very small in amount compared with the extent of local disease, as revealed by percussion and auscultation.

"Bronchial respiration; and very fine crepitating rattle, are the auscultatory signs developed in the disease.

"I have again, as two years ago, to recommend strongly its main treatment by quinine. The general dose which you see administered for an adult is five grains every third hour; and under its exhibition the pulse becomes slow and steady, the respiration free, and rapidly so. If the patient be young, with evidence of capillary congestion generally over the system, the exhibition is preceded by local depletion; but this is rather the exception. The patient, in this treacherous disease, often does not seek admission into hospital, nor advice in private practice, until too late, deceived by the absence of pain, of fever, and of expectoration, and feeling merely debility and shortness of breathing. In the instance which has furnished us an opportunity of examining the disease, the man died within six hours of admission into hospital.

"The whole upper lobe of left lung, you observe, is grayish or pale-colored, quite destitute of air or elasticity, solid like liver to the feel, but at the same time soft and brittle under the finger, with scarcely any evidence of pleuritic inflammation, while the lower lobe remains healthy."

ART. 43.—*On the Arrest of Pulmonary Tuberculosis.* By Dr. FLINT.*(American Journal of Medical Science, Jan., 1858.)*

In this paper Dr. Flint furnishes the details of 24 examples of arrest of phthisis that have occurred in his own practice, and then makes some interesting observations upon the circumstances which seem to favor such arrest. The number might have been much increased had he not excluded such cases as were too recent, or the subsequent histories of which had not been sufficiently followed up, and those in which the disease was not arrested but simply slow in its progress. The evidence of arrest was decided from the fact of well-marked symptoms progressively abating in intensity, the patient increasing in weight and strength. "Until within late years, instances of supposed recovery from phthisis were unreliable in consequence of the want of certainty in the means of determining the presence of the disease. This uncertainty has been removed by the discovery and improvement of the physical exploration of the chest. Physical signs in conjunction with symptoms, render the diagnosis of pulmonary tuberculosis positive in the great majority of cases. I shall include in this collection only cases in which the diagnosis rests on the conjoined evidence of signs and symptoms. With some exceptions, the results of exploration of the chest, together with the previous history and existing condition of the patient, were noted prior to the arrest of the disease. In a few instances, however, the cases came under observation subsequently to the arrest, and the diagnosis was made retrospectively: that is, the physical signs and previous history were deemed sufficient to render it positive that the patient had been affected with tuberculosis." In the narration of the author's cases a marked distinction is made between "arrest" and "recovery." Arrest, it is obvious, may take place without recovery, when the tuberculous affection ceases to be progressive, but the processes of restoration never being complete, recovery can only be said to have occurred when, in connection with restoration of the general health, the local symptoms have entirely disappeared. Of the 24 cases, in 13 arrest of the disease was followed by complete recovery, while in 11 arrest was alone demonstrated.

"In several of the cases the arrest of the disease was evidently due to an *intrinsic tendency* to that result; in other words, the disease ceased to be progressive, in consequence of its self-limitation. This is fairly to be inferred in those instances in which no appreciable external influences, in the form either of medication, diet, or regimen, were brought to bear in the course of the disease. Eight of the cases may be embraced in this category." The fact of such intrinsic tendency Dr. Flint believes is not sufficiently appreciated, having been, indeed, only of late recognized; and adds, that while it is probable that the arrest of tuberculosis, supposed to be brought about by the measures resorted to, is really in more or less of the cases actually due to the self-limitation of the disease; so is it supposed that this intrinsic tendency has been sometimes thwarted by injurious therapeutical or other means—especially when it was the custom to resort to the antiphlogistic course of treatment. In the cases here detailed no resort was had to antiphlogistic debilitating measures, such as depletion, mercurials, emetics, low diet, confinement, &c.; and it may be fairly asked whether an abstinence from such measures did not contribute to the favorable result.

The occurrence of hæmoptysis resulted in no less than 18 of the 24 cases. In 10 of the 18 it occurred more than once, and, in some, several times. The proportion exceeds that in which hemorrhage may be expected to occur in phthisis, according to the researches of Louis (57 of 87 cases), proving that the symptom is not an unfavorable one as regards arrest; the fact according with the conclusion arrived at by Walshe, that the occurrence of hemorrhage does not hasten the progress of the disease, but appears to produce an opposite effect. It also agrees with the inference from observations in individual cases in which hemorrhage seems to take place in lieu of a fresh tuberculous exudation.

Comparing the 14 cases in which measures of treatment were adopted, it is

found that in nearly all a change was made in the habits of life, such change consisting in relinquishing, partially or entirely, sedentary pursuits, and giving proportionately more time to *exercise in the open air*. In 5 of the cases this change in habits constituted the sole treatment, while all the 8 patients in whom the disease was arrested without any measures of management, were persons of active habits of life. We are, therefore, warranted in regarding out-door occupation as conducive to this result. "The exercise in the open air was not generally of the kind which often goes by that title, consisting in simple airings by gentle walks or drives; but it consisted in rough occupation, often involving considerable, and sometimes great exposure to vicissitudes of weather." *Change of climate* occurred only in two cases prior to evidence of arrest. "On this subject I have been led to conclusions to which others have also arrived, viz., that climate, in itself, exerts no special agency in determining an arrest, but that it may favor this result indirectly by affording better opportunity for exercise in the open air, and furnishing objects of interest to the mind which will secure that object. . . . It has seemed to me far less important to fix upon a situation supposed to be the most favorable in its climatic aspects to the tuberculous patient, than to select a residence where the inducements to active habits of exercise are greatest. To place a patient in a group of invalids, in a particular spot, where he is expected to derive some specific remedial influence from the atmosphere, is rarely useful. The *ennui* incident to such a position, for a man of active habits of mind and body, is intolerable, and the moral effect of his associations is injurious. Patients will do wisely in avoiding the favorite places of resort for those affected with the disease, and in choosing points where the incitements to and the resources for physical exertion abound. Generally the objects of a change of climate are better secured by frequent change of place than by remaining stationary. Travelling in foreign countries, even when, so far as the climate is concerned, the change is for the worse rather than the better, may be in a high degree useful, because the exercise which it invites is not endured as a task, but accepted as a means of mental gratification."

With respect to *diet*, the object was not to lower the powers of the system, but, on the contrary, to support and develop them by nutritious food. The patients were encouraged to live generously, indulging and cultivating an appetite for any and all the varied wholesome articles of food, with a full proportion of meat. In consequence of carbonaceous alimentary principles appearing to be useful in the management of phthisis, and the alleged fact of the comparative freedom from the disease enjoyed by persons working in sugar-houses, Dr. Flint advises the free use of sugar. "It is a significant fact, apparent on referring to the cases I have reported, that appetite and digestion were, in general, not greatly impaired. It accords with the views just expressed to regard an unimpaired appetite and digestion as highly favorable for an arrest of the disease. Observation undoubtedly shows us instances in which the tuberculosis is progressive, notwithstanding the ingestion and apparent assimilation of nutritious food; but it probably can show few examples of arrest of the disease when, either from disinclination or injudicious management, the diet is insufficient for the full support of the body, or fails to be appropriated to that end. No part of the management of tuberculosis seems to me of greater importance than that relating to the diet; in fact, whatever efficiency belongs to active habits of exercise, it is reasonable to suppose, is in great measure exerted by means of the increased activity of the processes of assimilation thereby induced." Diffusible stimuli, as wine, beer, and spirits, entered more or less into the management of a considerable number of these cases. They were given in moderate quantities, subsidiary to alimentation, i. e., contributing to render the digestive processes more active and complete. "I have of late advised their use much more freely than formerly, and I think I cannot be mistaken in attributing to them much value. I have observed that patients affected with tuberculosis are often able to take spirits in large quantity without experiencing stimulant or intoxicating effects. The disease appears to be one of those in which these effects are with difficulty produced."

Beyond mere palliatives, little use was made of *medicinal agents*, properly so

called. No remedies were given with reference to their special influence on the tuberculous cachexy, unless cod-liver oil can be so regarded. Tonics were often ordered, with the intention of influencing the processes of digestion and assimilation; and in this point of view they must be regarded as important agents. Cod-liver oil does not hold a very conspicuous place in these cases. Several of them occurred before it came into vogue; and in other cases it was taken for too short a period, either from the repugnance or the disturbance of the digestive organs it gave rise to. In very few instances was it persisted in. "Had a larger number of these cases occurred within a more recent period, or were I to report the cases during the last few years in which the progress of the tuberculosis appeared to be greatly retarded, although not arrested, this remedy would be found to enter more generally and often largely into the treatment. That it is a valuable remedy, I can scarcely entertain a doubt; but it is to be considered that, since it has become emphatically *the* remedy employed in this disease, improved pathological views and the lessons of experience have wrought a radical change in the management of the disease as regards other measures—a change consisting in the abandonment, to a great extent, of antiphlogistic and debilitating measures, and a recognition, more and more, of the importance of measures of an opposite character."

"A point pertaining to the *mental constitution* of persons affected with tuberculosis seems to me worthy of notice. As regards the successful management of the disease, much depends on the patient's energy and perseverance. Tuberculous patients, as is well known, usually entertain sanguine expectations of recovery; but in a large proportion of cases they expect recovery to take place without any extraordinary agency on their part to secure that result. The disease, while it engenders hopes which are so often fallacious, seems frequently to impair that determination of purpose without which the means requisite to effect an arrest will not be efficiently pursued. A passive expectancy of recovery, and a calm acquiescence in the prospect of a fatal termination, belong to the natural history of the disease. On referring to the cases which I have reported, I find that, in general, the persons manifested greater resolution than is usually associated with the tuberculous cachexy. This was due in some instances to innate strength of character, and in other instances to the force of circumstances."

"In conclusion, the general views which, with our present knowledge, are to govern the management of pulmonary tuberculosis, may be summed up in a few words. The ends to be attained are, the removal of the cachexy on which the progress of the disease depends, the consequent arrest of the disease, and the promotion of the processes of restoration. There is no special medication to be pursued for the attainment of these ends; they are to be attained by measures which, in general terms, develop and strengthen the power of the system. This mode of expression, it is true, in a scientific point of view, must be considered rather vague, but in a practical sense it has a meaning sufficiently definite. The measures are hygienic rather than medicinal; but much importance often belongs to the latter. The hygienic measures which are most important are laborious exercise in the open air, conjoined with agreeable mental occupation, and, as conducive thereto, frequently change of business, the selection of a more eligible climate, and travelling, are desirable, if not necessary; generous diet, and in many, if not in most, instances, the free use of alcoholic stimulants. The medicinal remedies, in addition to those which are simply palliative, are chiefly those of the tonic class, and in this category may be included the analeptic, which has of late years had so much celebrity."

ART. 44.—*Treatment of Phthisis, &c., by "Special Exercises."*

By DR. HENRY G. DAVIS.

(*American Medical Monthly*, March, 1858.)

Dr. Davis appears to agree with Dr. Edward Smith, in thinking that a lessened inspiratory action of the air-cells of the lungs has an important part to play in the production of phthisis, and that this lessened inspiratory action will be

more effectually counteracted by certain special exercises of the chest than by the forced inspirations recommended by Dr. Smith. He says:—

"In all the exercises which I recommend for the purpose of developing the chest and increasing the volume of lung, I make the hands the fixed point, moving the body towards them, or suspending a part or the whole of its weight by them. In this way more or less of the weight of the body is thrown upon the pectoral muscles, and as they arise from the sternum and ribs they act upon them in the same direction that they do in voluntary inspirations, without the fatigue that follows that effort. In this use of these muscles there is no necessity of fixing the parts from which they take their rise, as we do when we use them in direct action upon the arm; consequently the ribs and sternum are left free to be drawn by them, as illustrated by their use in asthma. Another consideration is, that involuntary respiration goes on without being disturbed, even should the patient suspend himself by the hands for fifteen or twenty minutes, and this, too, it will be recollected, when the chest is expanded by so much of the weight as rests upon the pectoral muscles.

"It is immaterial what this exercise is, provided the hands are made the fixed point. I have used a bar, confined to the ceiling at each end by ropes; from this bar the patient suspends himself by the hands, or, if sufficiently strong, he draws himself up until his chin reaches the bar; then bringing his arms into an extended position, he may repeat it as many times as his strength will permit; or he may throw his weight first upon one hand and then upon the other, alternately; but this requires much practice and muscular power. Another mode is to use ropes with knots every six or eight inches; these he uses to hold upon as he climbs up, or he may suspend his weight, holding by his hands, and swing back and forth; metallic rings may be substituted in the place of knots, answering the same purpose. If quite feeble, he can lean upon some object with his hands at armslength, the object being of such a height that the body will be inclined at an angle of thirty-five or forty degrees; in this position the pectoral muscles will support a portion of the weight, and thus enlarge the chest. To secure the full advantage to be derived from this mode of exercise, it should be prosecuted faithfully. My advice has been to repeat it every half hour, and continue it until a considerable degree of fatigue was produced."

ART. 45.—*The "Specific Treatment" of Consumption.* By RICHARD PAYNE COTTON, M. D., F. R. C. P., Physician to the Hospital for Consumption, &c., Brompton.

(*Medical Times and Gazette*, Feb. 13, 1858.)

In a "Memoir" lately published in Paris,* and presented to the Imperial Academy of Medicine, Dr. J. F. Churchill has introduced to the profession, as a "specific" remedy for phthisis, phosphorus in certain combinations. A few months previously he had proposed its employment at the Hospital for Consumption at Brompton; but having then declined to make known its composition, the offer, like many others under similar circumstances, was necessarily rejected by the medical board. The new remedy, however, being now no longer a secret, and its efficacy, as stated in Dr. Churchill's work, being so "immediate" and unprecedented, Dr. Cotton has thought it a duty to give it a fair trial at the Hospital for Consumption, and to publish the results.

Dr. Churchill is of opinion that the direct cause of tuberculosis is the decrease in the system of the normal proportion of phosphorus in an oxygenizable state, and that the natural remedy should be sought in some compound of phosphorus at the lowest possible degree of oxydation. The hypophosphites appeared to him to offer the nearest approach to such a quality; and of these he selected the hypophosphites of soda and of lime, as being the most soluble and assimilable. "They produce," he observes (p. 15), "a manifest increase of nervous power, sometimes even from the first day of their administration, together with an unusual feeling of comfort and strength. At the same time, the nervous symptoms, if there have been any, disappear, as well as the func-

* Sur la Cause immédiate, et le Traitement spécifique de la Tuberculose. Paris, 1858.

it is given as food, or, as he preferred, to direct them to increase the nutrient fats in proper quantities and of a suitable kind, and to administer other articles as medicine.

The following are the author's conclusions: That neither cod-oil nor fat of any kind removes phthisis. That the cases of arrest of the disease are very few. That commonly the disease progresses, and is as fatal now as it was before the oil came into general use. That in about half of the cases the rate of progress is retarded. That the patient may be both stronger and stouter, and yet the disease quietly progress. That when the oil disagrees, it is chiefly from its influence upon the digestive organs. That when it agrees, it is chiefly by improving nutrition; but that in many cases it is believed by the patient to have a local influence. That this local influence is most important in the pharynx and other parts of the mucous tract. That it acts almost entirely as a fat, and supplies a defect in the system. That it has no advantage over fats used in food, and may, like some of them, be taken and rejected. That there is a large class in whom it is not beneficial, and it should be used with discrimination. That it is our duty and our interest to dissociate food and physic. Lastly, that it leaves the essence of the disease untouched; but that the great good which it often does temporarily proves the importance of fat in the animal economy.

Dr. Smith shows how much more frequently there is appetite for fat in bronchitis than in phthisis and mere debility, and particularly in liver diseases; but he defers the discussion of the question, and of the use of fats in general to another occasion. He urges upon the profession the impropriety of poor-law surgeons being compelled to supply the oil, when the guardians ought to give fat in food; and of the medical officers of hospitals and dispensaries taxing the over-burdened funds to supply so extensive a food.

ART. 47.—*The Effect of Local Influences on Spasmodic Asthma.* By Dr. HYDE SALTER, Assistant-Physician to Charing-cross Hospital.

(*Lancet*, Dec. 26, 1857.)

The purport of this paper is to show that, in a very large proportion of cases of asthma in which it has been fairly tried, change of locality effects an instantaneous cure, which is permanent as long as the asthmatic continues his residence in the place that has cured him. The author remarks that, although the subject of his paper is a single method of cure of a single disease, yet that the efficacy and completeness of the cure, and the painfulness and intractability of the complaint, vindicated it from unimportance; and, indeed, that in so distressing and unmanageable a disease, any remedy that offered even a small percentage of cures might be considered the greatest possible boon. The paper is illustrated by nearly thirty original cases, and the points that the author considered to be established are as follows:—

1. That residence in one locality will radically and permanently cure asthma resisting all treatment in another locality.
2. That the localities which are the most beneficial to the largest number of cases are large, populous, and smoky cities.
3. That this effect of locality depends, probably, on the air.
4. That the air that would be imagined to be the worst for the general health is, as a rule, the best for asthma; thus the worst parts of cities are the best, and conversely.
5. That this is not always the case, the very reverse being sometimes so—a city air not being tolerated, and an open, pure air effecting a cure.
6. That there is no end of the apparent caprice of asthma in this respect, the most varying and opposite airs unaccountably curing.
7. That, consequently, it is impossible to predict what will be the effect of any given air, but that probably the most opposite to that in which the asthma seems worst will cure.
8. That some of these differences, determining the presence or cure of asthma, appear to be of the slightest possible kind, arbitrary, and inscrutable.
9. That the mere conditions of locality appear to be adequate to the production of asthma in a person whose disposition to it was never before sus-

pected, and who probably never would have had it, had he not gone to such a locality.

10. That, consequently, probably many healthy persons who never have had asthma, and never may, would have been asthmatics if their lot had been cast in other localities.

11. That possibly there is no case of asthma that might not be cured if the right air could only be found.

12. That the disposition is not eradicated, but merely suspended, and immediately shows itself on a recurrence to the original injurious air.

13. That change of air, as change, is prejudicial.

14. That, from the caprice of asthma, the constancy of the result in any given case is often deranged.

In reference to the frequency with which London air is beneficial to asthma, the author remarked that he was in the habit of putting to country asthmatics the two questions—"Have you ever been in London? have you ever had asthma there?" and that, if an affirmative answer was given to the first question, a negative one was pretty sure to be given to the second. In his own experience he had found hardly any exception to this rule.

ART. 48.—*On Intercostal Neuralgia.* By A. W. NICHOLS, M. D.

(*Buffalo Medical Journal*, July, 1857; and *North American Medico-Chirurgical Review*, March, 1858.)

Dr. Nichols treats of the causes, symptoms, diagnosis, and treatment of intercostal neuralgia, his remarks being based on an analysis of twenty recorded cases. The results of the analysis go to show that this affection generally occurs after puberty, and under thirty-five years of age. It occurs in persons not enfeebled, but apparently possessing good constitutions. It appears to be developed in those who are engaged in active occupations rather than in those of sedentary habits. All but two of the cases analyzed were observed in the latter part of winter and early part of spring. The left side is more commonly affected than the right. Both sides are rarely affected. It is sometimes observed in the course of pulmonary tuberculosis, and frequently during or after an attack of periodical fever.

As regards the symptomatic phenomena, the histories of these cases confirms the correctness of the descriptions of the affection given by Nichol, in 1818, and, more recently, by Bossereau and Valleix. The most distinctive feature is the existence of pain, and tenderness on pressure, limited to particular points on the thoracic and abdominal parietes. These points are, *first*, slightly to the outside of the spinous processes of the dorsal vertebrae and almost over the dorsal-intervertebral foramina, just opposite the divisions of the spinal nerves into their anterior and posterior branches; *second*, about midway between the spinous processes and the margin of the sternum; and, *third*, near the edge of the sternum, or on the abdomen at the side of the median line. The pain or tenderness may be limited to one or two of these points, and often all three are affected. The tenderness is very circumscribed, extending over a space which may be covered with the ball of the thumb.

The treatment which seemed most efficient consisted of vesication, anodyne, and tonic remedies. The affection was found to persist, in several instances, for some weeks.

ART. 49.—*The Chest Goniometer.* By Dr. SCOTT ALISON, Assistant-Physician to the Brompton Hospital for Consumption.

(*Lancet*, Nov. 14, 1857.)

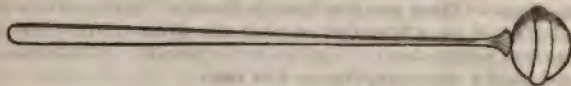
This instrument consists of two arms, moving on a centre, to one of which is fixed an arc of a circle, and to the other a hand or index. When the two arms are separated so as to form a straight line, the arc and the index are at right angles to them, and the index points to 180°, the half of a circle. The arms are placed upon the part of the chest to be measured, and made to fit it; the angle is then read off. The two sides of the chest are measured and

compared, and the slightest deviation from symmetry is at once detected. The discovery of depression in very early or doubtful phthisis, when the ordinary percussion and auscultatory signs are ill pronounced, readily obtained by this instrument, promises to render it a valuable aid in diagnosis. It will also serve to mark from time to time, with greater precision than by the eye, the progress of disease, whether favorable or unfavorable, as indicated by the form of the chest. The instrument is made of ivory, and is very light and portable. Dr. Alison is collecting observations with it, which he promises shortly to lay before the profession.

ART. 50.—*A new Percussion Hammer.*

By Dr. VERNON, Physician to the Great Northern Hospital.

(*Lancet*, Feb. 6, 1858.)



"The hammer of which the above drawing is a representation, is one," says Dr. Vernon, "which suggested itself to my mind several years ago, when attending the clinique of Dr. J. Hughes Bennett, of Edinburgh. Having latterly been more frequently engaged in the diagnosis of thoracic diseases than at any previous time since the idea suggested itself to me, I have had the instrument made by Messrs. Whicker and Blaise, of St. James's Street. The hammer consists of a slender tapering handle of whalebone, eight inches in length, surmounted by a sphere of bell-metal, weighing one ounce. The sphere is grooved deeply in an equatorial direction, and a stout ring of caoutchouc is let into the groove, as a cushion upon which to strike. Such is the instrument—simplicity itself.

"The advantage which a percussion hammer has over the fingers is very obvious, especially in cases where much refinement is required. The rudest efforts of an unskilful neophyte will distinguish between the dulness heard in the centre of the hepatic region and the generous resonance of the upper and anterior parts of the thorax. But the greatest utility of percussion is precisely in those cases where we desire to distinguish slight differences, and hence the advantage of a means of defining such distinctions.

"The purpose of a percussion hammer being to produce a clear and definite sound, and not to drive a nail into the body, instead of imitating a carpenter's hammer, as Dr. Winterich has, I have rather taken a hint from the musician, and imitated a drum-stick. The advantages possessed by the hammer in the accompanying figure are—

"1. That the stem being round and smooth, it may be lightly and easily handled.

"2. That the handle being elastic, the hammer-head springs off the pleximeter momentarily, as the hammers of a pianoforte do off the strings of that instrument; the result being a clear tone, the vibrations of which are not checked by the lingering of the hammer on the vibrating body.

"That in whatever direction the hammer falls on the body, if the same spot be struck with the same force, the note produced will be the same; because the handle of the hammer being round, and the head spherical, every axis is equal in length, and the line through which the force acts is equal, in every possible position of the hammer, the operator, or the patient.

"To sum up, the superiority of this instrument over Dr. Winterich's consists in the facts, that it is convenient, elastic, produces the same sound however held, requires no education to use it, and fulfils all its purposes.

"In children and very spare adults I prefer the fingers, because they are generally sufficient, and they recognize the sense of resistance; but in even moderately-developed adults I believe a hammer, and especially the one I have described, will be of great service to those who are not very skilful with the fingers, or have hands too light to elicit the desired sounds."

(C) CONCERNING THE CIRCULATORY SYSTEM.

ART. 51.—*A Peculiar Case of Leukæmia.* By Dr. N. FRIEDRICH, of Würzburg.

(*Virchow's Archiv*, Bd. xii. Ht. 1, p. 104; and *Med.-Chir. Review*, April, 1858.)

This case, in which a peculiar state of the mucous membrane of the digestive organs co-existed with the altered state of the blood, is related at considerable length. The following abstract is by Dr. J. W. Ogle:—

CASE.—The patient was a woman, æt. 46, who died eventually, having fallen suddenly into a syncopal condition. The outer lymphatic glands were hardly at all enlarged, but the glands about the mesentery and stomach were very much so, showing on section homogeneous soft white masses, very like some portions of the thickened spongy pleura formed from fresh and old pseudo-membranous deposits, and found within the thorax. The most interesting observation after death was the unusual state of the mucous membrane of the stomach and intestines.

From the cæcal valve upwards as high as the duodenum, numerous large and small flat and prominent elevations existed, having the closest resemblance to the pulpy typhus infiltration previous to ulceration. These were very plentiful in the lower part of the ileum, where the mesenteric glands were largest, and were obviously occupying the place of Peyer's glands, but were not entirely confined to them. They showed, on section, the same appearances as the mesenteric glands. The large intestine was free from these tumors, excepting the rectum, which contained one or two. In connection with one of these leukæmic enlargements, in one place a varicose lymphatic vessel of the size of a small quill, and filled with white juice, was seen passing into an enlarged lymphatic gland, but no outgoing vessel from the gland could be distinguished. In the stomach, near the cardiac end, and on the posterior wall, a flat, irregularly bounded elevation, covered by mucous membrane, existed, and several such were seen in the pyloric half of the stomach. These were evidently of the same nature as those in the intestine. The spleen was enlarged, the pulp being very soft, and the Malpighian bodies very large, the trabecular work being very indistinct. The reaction of the spleen, pulp, and of the splenic venous blood was intensely acid. The liver was enlarged, showing in one part a cavernous blood-tumor; and in another part, almost occupying the entire thickness of the viscus, was a soft, roundish tumor of a grayish-white color and pulpy consistence.

On microscopical examination, the author concluded that the intestinal tumors had the same histological elements as the enlarged glands; namely, large and oval nuclei, as also round cells, chiefly with single nuclei. The tumors appeared to have no original relationship to the pre-existing follicles of the mucous membrane, but to be developed in the mucous and submucous tissues. On examining parts of the deepest portions of the tumors, where connected with the deep layer of the submucous tissue, the numerous and enlarged areolar tissue-cells were seen to contain two and more endogenous nuclei and cells undergoing fatty degeneration; and every transitional form up to large and oval spaces filled with various endogenous formations, presented themselves. The follicles of the mucous membrane were seen to be atrophied and filled with fatty detritus.

The author traces the origin of the colorless elements to the areolar tissue corpuscles of the intestinal mucous membrane, and in the same way he traces the growth before spoken of on the pleura, and which consisted of numerous colorless elements, partly nuclei and partly cells, to the pre-existing areolar tissue corpuscles of the pleura. He declares that in the most beautiful manner it can be seen how by endogenous formation within them, at first two or three, and later on more, nuclei arise, which grow to such an extent that the special areolar tissue of the pleura can hardly be seen. This endogenous cell-growth appears to occur without any special preceding afflux of blood. The spleen showed white follicles, consisting of small, colorless cells, containing fat-drops, as also many free nuclei, some fine fatty detritus, and remains of cells. Here

and there large cells, with many endogenous nuclei, were seen. The pulp contained numbers of spindle-shaped spleen corpuscles, and many large and small colorless cells, some being in a state of fatty degeneration, others containing many nuclei, also a great number of large blood-corpuscle-holding cells. The hepatic cells were double or three times their natural size, and most of them were very irregular in size, containing two or three large, sharply-contoured, round and oval nuclei. The liver substance, like the spleen, gave an acid reaction. The grayish-white tumor within this viscus consisted of small, round, nucleated cells, and also free nucleus-like bodies in a soft connective tissue stroma, containing spindle-shaped cells. The author supposes the colorless elements to have arisen from the areolar tissue cells of the hepatic stroma when undergoing contemporary growth. He also found in the middle of the tumor a circular space, in which large, clearly contoured cells filled with many endogenous glittering nuclei existed. This is supposed by the author to be analogous to the newly formed follicle found by Virchow (see his "*Gesammelte Abhandlungen*," s. 207) in the liver of a leukæmic patient, and considered by him as a degenerated areolar tissue corpuscle, enlarged by endogenous growth. The blood was also generally very acid, especially in the splenic vein blood, where were found the largest number of white corpuscles. The above case tends to confirm the observations of Virchow upon the existence of leukæmic tumors of the liver and kidneys, and upon the supposed part which connective tissue corpuscles play in the production of colorless forms in leukæmia; and also those of Schreiber ("*Diassert. Inauguralis*") as to the changes in the intestinal membrane. The author also quotes a case of leukæmia related by Robin and Isambart ("*Gaz. Medic.*" 1856, p. 682), in which Peyer's patches were pale and enlarged; and alludes to the observations of Virchow and Leydig, who suppose a most intimate connection to exist between connected tissue corpuscles and the commencement of lymphatic vessels. He concludes by drawing an analogy between leukæmia and abdominal typhus, both in respect of certain anatomical characters, increase of colorless corpuscles, &c., as also in the tendency to hemorrhage, the formation of ulcers of the mouth and skin, the diarrhoea, &c. He mentions the interesting fact that the pulpy tumor mass, on exposure to the air, assumed a reddish color, as did the leukæmic pleural patch, and this accords with the observations of Virchow, Valentin, Gubles, and Quevenne, as to the spontaneous change of color which lymph corpuscles undergo under the action of the air.

ART. 52.—*Remarks on 70 cases of Hypertrophy of the Heart.*

By Dr. VAN DER BYL.

(*Medical Times and Gazette*, May 1, 1858.)

These remarks were made at a meeting of the Pathological Society after the exhibition of certain specimens of the disease in question: "Hypertrophy of the heart occurred in 70 cases out of 380 post-mortem examinations; that is, in 18.4 per cent. of patients dying from various diseases. In all the cases the heart weighed upwards of 14 oz. in the adult male, and upwards of 12 oz. in the females. Of these 70 cases, 46 were males and 24 females. The average age of the males was 43.3 years; the average weight of their hearts was 19.3 oz. The average age of the females was 41.6 years; the average weight of their hearts 15.6 oz. Some of the principal morbid appearances associated with hypertrophy of the heart in these 70 cases were: Disease of the aortic valves in 36, of the mitral in 32; in 22 of these, aortic and mitral disease coexisted; vegetations on the aortic valves in 9, on mitral in 5; adherent pericardium in 9; atheroma of aorta in 13, of pulmonary artery in 1; cerebral hemorrhage in 4; bronchitis in 10; phthisis in 7; granular disease of kidneys in 46; cirrhosis of liver in 21, &c. The eight volumes of the '*Transactions of the Pathological Society*' contain accounts of 40 cases of hypertrophy of the heart, in which the weights are given. Of these 34 were males, and only 6 females. The average age of 31 of the males was 44 years; the average weight of the heart of the 34 males was 22.1 oz., the heaviest weighed 40 oz. The average age of the females was 37.5 years; the average

weight of their hearts was 17.5 oz. Disease of the aortic valves occurred in 28, of the mitral in 17; in 14 cases aortic and mitral disease coexisted. From this analysis of Dr. Van der Byl's observations, and of the cases recorded in the 'Transactions,' it appears: 1. That hypertrophy of the heart occurs in nearly 18½ per cent. of patients dying from various diseases. 2. That it is about twice as frequent in males as in females; or, exactly as 8 to 3. 3. That the average age of males and females is nearly the same; that of the males being 43½ years, and of the females 39½. 4. That in hypertrophy of the heart, disease of the aortic valves is more frequent than disease of the mitral; as 8 to 6. 5. That in hypertrophy vegetations are more frequently situated on the aortic than on the mitral valves. 6. That adherent pericardium exists in about one-eighth of the cases. 7. That granular disease of the kidneys occurs in about two-thirds of the cases."

ART. 53.—A Remedy for Palpitation. By. Dr. KOLLIKER.

(*Verhandl. der Phys. Med. Gesellsch.*; and *Edinb. Med. Journal*, May, 1858.)

In a case of severe palpitation, Dr. Kolliker has found that deep inspiration and subsequent holding of the breath sufficed, after a few times, to cut short this most unpleasant symptom.

ART. 54.—A case of Sudden Death from the impaction of a detached clot in a contracted mitral orifice. By. Dr. VAN DER BYL.

(*Lancet*, Jan. 30, 1857.)

At a recent meeting of the Pathological Society of London, Dr. Van der Byl exhibited a fibrinous coagulum or globular vegetation, which had been found in the left auricle of a woman, æt. 25, who had died suddenly in the Middlesex Hospital. For three weeks before her death she had suffered from œdema of the legs, ascites, orthopnoea, and frequent cough. The heart's action was rather forcible with mitral regurgitant bruit; and that she never had rheumatism. The urine was very albuminous, but contained no casts of tubuli. On the 4th of November, after breakfast, she suddenly fainted; she was seen almost immediately by the house-surgeon, Mr. Tatum, and then appeared insensible; the pulse was scarcely perceptible; the heart's beat was strong and quick; respiration gasping. The heart's action ceased in about a minute; she then gasped four or five times and died.

Post-mortem examination.—The heart was found enlarged, weighing fourteen ounces and a half. On opening the left auricle, an irregular, shaggy looking mass was seen sticking in the mitral orifice. When it was washed out and floated in water, it assumed a sac-like appearance, and was about the size of a pigeon's egg. The portion required to complete the sac or capsule was found adherent to the inner surface of the auricular appendix by means of fibrinous bands and processes, which were entwined in the muscoli pectinati. Three or four smaller globular bodies, about the size of peas, were found in the left auricular appendix, similarly fixed. On squeezing one of these, it burst, and yielded a thick, grayish, purulent-looking matter, which seemed to form the contents of a capsule, similar to, but smaller than the one found detached in the auricle. There can be no doubt but that the larger capsule was of exactly the same nature as the smaller ones, and that they all are fibrinous coagula, in which the central portions have softened or broken up. There was no actual organic union between any of these coagula and the walls of the auricle. The mitral orifice was much contracted, and measured only four-tenths of an inch in diameter. The chordæ tendineæ of both flaps of the mitral valve much thickened and shortened; the apices of both papillæ to which the chordæ were attached presented a white fibroid appearance; some small warty vegetations projected from the free margins of the contracted mitral orifice. The aortic valves were perforated by several small openings, on the posterior wall of the left ventricle, half an inch below the aortic valves, the endocardium presented a thick, rough patch, resembling a cicatrix, about the size of a shilling. The brain was healthy, and there was no obstruction in any of the ves-

sels. In each lung there were two or three firm black masses of recent apoplexy, each about the size of a hen's egg. The liver was nodulated and granular; and, on section, presented radiating patches of extravasated blood. The spleen was marked by a depressed, firm fibroid patch, extending half an inch into its substance. The kidneys were granular; on section, the right at its upper end, exhibited a firm yellow patch, extending as deep as the cortical substance, and about two inches in length; at about one inch from this was a smaller yellowish patch, not so firm as the large patch, and more granular; near the lower extremity were three or four cysts, about the size of peas; the left kidney was marked by a superficial yellowish patch.

(D) CONCERNING THE ALIMENTARY SYSTEM.

ART. 55.—*Curious case of Gastro-cutaneous Fistula, and observations on other cases of the same kind.* By DR. MURCHISON.

(*Proceedings of Royal Med. and Chir. Society, vol. ii. No. 1.*)

The author saw the subject of the following history when on a visit to Aberdeen, in May, 1857. The patient was then under the care of Professor Keith, who indeed supplied the particulars of the case.

CASE.—Catharine R—, æt. 34, was admitted into the Aberdeen Royal Infirmary, under Dr. Keith, February 19th, 1857. She is the daughter of healthy parents, both still alive; but one of her brothers is epileptic, and of two of her sisters one is the subject of hysterical fits, and the other idiotic. The patient herself, about the age of eighteen, began to exhibit hysterical symptoms of the most aggravated form. On more than one occasion she has been convicted of feigning diseases, so as to deceive her friends and medical attendants. In 1844 she succeeded, by applying a tight ligature around the shoulder, in producing such a solid oedematous condition of the left arm, that it was believed by her medical attendants to be elephantiasis. After two years of unavailing treatment, at her own suggestion she was admitted into the Aberdeen Infirmary, under Dr. Keith, with the object of having her arm amputated. Dr. Keith, however, exposed the fraud; and three weeks' confinement in a strait-waistcoat cured the arm. Some years after this, she fancied she had heart-disease, and a seton was introduced by a surgeon into the epigastrium. This seton was allowed to ulcerate out; and the patient contrived to prevent the resulting ulcer from healing, by making constant pressure upon it with a copper penny-piece. The ulceration continued to advance; and after three years—viz., on March 2d, 1854, it penetrated into the stomach, this organ having been previously contracted, adhering to the abdominal parietes. On removing the dressings on this day, a quantity of fluid, with a piece of biscuit and orange-skin, escaped from the opening. This opening continued to enlarge, and the only way she could retain her food was by keeping it closed with a gutta percha plug.

On her admission into the Aberdeen Infirmary, in 1857, the opening was situated partly in the epigastric, and partly in the umbilical regions, measuring four inches transversely, and three from above downwards. When the plug was removed, everything she swallowed immediately escaped from the opening; and, if the patient raised herself up, or coughed, the whole stomach became everted. The mucous membrane was of a bright vermilion-red color, disposed in rugæ, along which undulatory movements could be observed. Blue litmus paper, applied to the moist surface of the empty stomach, was not reddened. The stomach could be manipulated in the freest manner, without causing any pain, the only result being a slight feeling of faintness or nausea. The integuments surrounding the opening were red, glistening, and tender. Her appetite was good, often ravenous; and she could eat and digest any kind of food. She was much troubled with thirst, and had only one motion of the bowels in twelve days. For nine years she had been confined to bed, but more from pretended than real ailments; so that at last her joints had become stiff, and she was unable to stand.

The author then gives an account of an experiment which had been performed upon the patient by Dr. Keith, to demonstrate the mechanism of vomiting. From this it would appear that there is first contraction of the pyloric extremity of the stomach itself; but that the evacuation of the organ is chiefly caused by its compression, from the simultaneous contraction of both the diaphragm, and recti and oblique muscles.

Dr. Murchison then gives a brief extract of all the cases of fistula opening into the stomach from without, which he had been able to collect from the records of medicine and surgery during the last three hundred years. They amount to twenty-five, including that of Catharine R. He then proceeds to make some general observations on the cases, under the following heads:—

A. *Causes of gastro-cutaneous fistula.*

1. *Mechanical injuries*: seven cases.

1. Incised wounds of the abdomen penetrating the stomach, and ending in permanent fistula: three cases.
2. Gun-shot wounds: two cases.
3. A blow over the stomach, ending in abscess, which opened both externally and into the stomach: one case.
4. Ulceration from without, caused by pressure: one case.

II. *Diseases*: eighteen cases.

1. Cancer of the stomach: six cases.
2. Simple perforating ulcer of the stomach: probably twelve cases.
3. An abscess originating external to the stomach, and opening both into this organ and externally, may have been the cause in one or two cases.

B. *Situation, size, and other characters of the external opening.*—In none of the cases hitherto recorded did the opening at all equal in size that which exists in Catharine R.

C. *Escape of food swallowed by the abnormal opening.*—This was observed in all the cases; but in six, fluids only are noted as having escaped. In the case of St. Martin, the necessity for an artificial plug became, after a year or two, superseded by the formation of a natural one, from a fold of the mucous membrane of the stomach. The author pointed out that the escape of food, recently swallowed, from a fistulous opening in the abdomen, did not necessarily indicate a direct communication with the stomach.

D. *Duration of the fistula, and possibility of cure.*—In cases resulting from cancer of the stomach, death, as might be expected, speedily ensues; three months being the longest period that a patient has survived the fistula. On the other hand, where wound or simple ulcer of the stomach has been the cause, the patients have generally lived many years, apparently in the enjoyment of good health. One case is on record of a woman who lived twenty-seven years with a fistula into the stomach; and the opening into St. Martin's stomach has existed for thirty-five years, he being still alive and in good health. As to the question of cure, the author stated that in four of the cases the fistula appears to have closed spontaneously, but in two of them it reopened. In two other cases the obliteration of the fistula was the result of treatment; but in none of the cases was any cutting operation resorted to.

E. *General health of persons affected with gastro-cutaneous fistula.*—In permanent fistula, the general health has in most cases been wonderfully good. The chief abnormal symptoms have been great thirst, increased appetite, obstinate constipation, deficient secretion of urine, and, in women, amenorrhœa.

F. *The physiological observations which have been made in cases of gastro-cutaneous fistula.*—In six of the cases observations had been made as to the appearance of the gastric mucous membrane, and the movements of the stomach, etc. Out of four cases in which the color of the mucous membrane has been noted, it has been a bright vermillion red in three; but in the case of St. Martin it was a "pale pink," varying in tint with the full or empty state of the organ. Movements of the stomach, for the most part of an undulatory nature, have been observed in five of the cases. In three cases, irritation of the mucous

membrane has been observed to give rise to nausea and faintness, but not to cause any pain.

The author goes on to notice the various theories which have been entertained as to the mechanism of the act of vomiting; and stated that, from all the observations that had been made, including that upon Catharine R., the following conclusions might be arrived at:—

1. The act of vomiting is produced by the contraction of both the stomach and the abdominal muscles.

2. The contraction of the stomach is limited to the pyloric extremity, and has for its main object the closure of the pylorus.

3. The chief part of the act is effected by the contraction of the diaphragm, as well as of the recti and oblique muscles.

In three of the cases observations had been made on the chemical and physical characters of the gastric juice, and on its digestive powers over different articles of diet; viz., on Madelaine Gore, in Paris, at the commencement of the present century, by M. Clarieu; on Alexis St. Martin, by Drs. Beaumont, Dunglison, and Smith; and on a female at Dorpat, in 1853, by Messrs. Otto Von Grünewaldt and Ernst Von Schröder. The nature of the results arrived at, in each of these cases, was briefly alluded to, and they were stated to be of a somewhat conflicting character.

No experiments as regards the gastric juice have as yet been undertaken in the case of Catharine R. Although the fistula, in her case, affords unparalleled opportunities for making such experiments, the author doubted if the results obtained would be of much value in her present debilitated state of health. He observed, however, that for some months she had been improving in strength, and expressed a hope that she might yet become a fit subject for experiment.

The paper was illustrated by numerous photographs of Catharine R., and by drawings of several of the other recorded cases of gastro-cutaneous fistula.

ART. 56.—*On some of the Inflammatory and Obstructive Diseases of the Cæcum; with Remarks on the Abuse of Violent Purgatives.* By W. R. ROGERS, M. D.

(*British Med. Journal*, Sept. 17, 1857.)

The author commences by alluding to the slight and cursory notices of these diseases in systematic treatises on medicine, and how frequently they are confounded with essentially different diseases of the intestinal canal. They are of frequent occurrence, are dangerous, and often fatal, and are characterized by a train of symptoms which render their recognition certain. He believes that the cæcum may be the seat of fatal diseases without any other part of the digestive tube being implicated; and that it often is first in the chain of causation of other disorders, with which it has been generally believed to be only accidentally related, these evincing the most marked disturbance, while the cæcum apparently exhibits but little disorder. Thus its diseases are not unfrequently mistaken for hysteritis, cystitis, enteritis, peritonitis, puerperal fever, and pelvic abscess. The author quotes Tiedemann and Gmelin, Drs. Copland, Carpenter, and others, to prove the importance of the cæcum in the animal economy, partaking of the nature of a stomach in the granivorous and ruminating animals, and that it is the viscus in which the last act of digestion is performed, secreting an acid, albuminous, and solvent fluid, and also pouring out of its numerous follicles an unctuous and oily material, with hydro-sulphuretted gases, to be eliminated from the economy. Thus, like the lungs, kidney, and skin, it is a depurating organ, so that when costiveness exists there is danger of these excretions being reabsorbed and contaminating the blood. He states that he had within the last twenty years met with not a few cases of these diseases, some of which he would class as "acute," others "chronic," inflammation of the cæcum—typhlo-enteritis; they had not appeared to arise from the ordinary causes of inflammation—viz., exposure to the vicissitudes of the weather, or alternations of temperature, but seemed to be produced by some mechanical, exciting, and irritating cause, the lodgement of impacted, hardened feces, undigested food, fruit, skins, and stones of fruit, and concretions of varied and different kinds, and often arise while the person is in

good health. The symptoms may begin mildly, and gradually proceed to greater intensity; or they may, in excitable subjects, be violent from the onset. There is but little febrile disturbance compared with the local pain and suffering; less anxiety of countenance than in enteritis; pulse not small, or much quickened at the commencement; there is great tension and tenderness over the cæcum, so that the least pressure cannot be borne; there are no rigors; the pain is constant, does not intermit, and its area goes on extending till the whole abdomen is involved; but the right ileo-inguinal region is ever the most tender part. There is obstinate costiveness; nausea and violent vomiting may set in, especially when drastic purgatives have been persevered in; the position is characteristic—the patient lies on the right side, body bent, and thigh drawn up; the countenance has not the anxious aspect of enteritis. If neglected or wrongly treated, the abdomen becomes tense and tympanitic, and general enteritis or peritonitis may supervene. Should the appendix be inflamed or ulcerated, all the symptoms are more acute, and likely to terminate fatally by peritonitis or fecal abscess. In the progress of these diseases, adhesions are often formed in its interior, or to other parts; the areolar tissue around may inflame, suppurate, and give rise to abscess, which may tend upwards and downwards, and require to be opened; they may either open externally, or find their way into other parts of the intestinal canal, the patient recovering, or may die worn out by the discharge. Should the ulceration open into the peritoneum, peritonitis of a diffused and fatal character will be set up, as in one of the cases related by the author. This termination is fortunately most rare, though not uncommon in typhoid and dysenteric fevers. When resolution takes place, it is preceded by action of the bowels and gradual subsidence of the pain, tenderness, sickness, and fever, about the fourth, sixth, or even the eighth day. This result can only be obtained by most judicious treatment; but when mistaken, and treated too actively by large and repeated bleedings, or violent and continued purgatives, there is much danger of a fatal termination, or of a long and protracted convalescence. If fecal abscess forms, the drain on the system is long and exhausting. The author coincides very much with Doctor Burne, whose papers in the "*Medico-Chirurgical Transactions*" he refers to. In these acute cases, leeching, fomentations, soft poultices, mild effervescent aperients, and large bland enemata, will often resolve the inflammation; if not, calomel and opium, or opium alone, should be given, but violent purgatives are to be avoided. Dr. Rogers places great reliance on bland mucilaginous enemata, passed into the bowels with a long O'Beirne's tube, with which he has often relieved and cured cases of simple obstruction and constipation that had resisted other treatment; he thinks the use of this instrument is much neglected. The author lays great stress on cautious dieting, which should be, for a long time, of the simplest and blandest form—arrow-root, rice, milk, eggs, and subsequently beef-tea and jellies. In those forms of acute inflammation that have supervened on some subacute chronic form, long perseverance in this cautious regimen is even of more importance. In chronic inflammation, careful regimen and regulated action of the bowels are essential; the symptoms now are all more or less subdued and indistinct: irregular action with colicky pains; diarrhoea alternating with costiveness and fetid dejections; hardness and fulness over the cæcum, with tenderness on pressure. The author relies on blisters, iodine, and liniments, mild saline aperients, and strict attention to dietetic rules: from neglect of these, he has had occasionally to regret the loss of a patient. In simple obstruction, he relies on large enemata and mild saline aperients, with a sedative, as hyoscyamus, belladonna, &c.; he quotes cases from different authors on the frequency of these obstructions and the mistakes often committed by the reckless abuse of violent purgatives, which, even in cases of hernia, have been given till death removed the sufferer from his tortures. In the more obstinate cases, electricity, dashing cold water, tobacco fomentations over the abdomen, and inflation with bellows, have each been successful. Should all means fail, operative surgery comes to our aid.

ART. 57.—*Sequel to a case of Obstruction of the Bowels, in which Paracentesis was performed.* By Sir HENRY COOPER, Physician to the Hull Infirmary.

(*British Med. Journ.*, Aug. 8, 1857.)

The previous account of this case will be found in our 25th volume, p. 229.

CASE.—In March of the present year (fifteen months after the operation), Miss K—— began to fail in flesh and strength; her appetite left her; and she had feverish attacks, with much abdominal tenderness. In May, while making an extraordinary effort in moving some heavy article of furniture, she felt "something give way" in her body; and from that time her symptoms steadily and rapidly advanced. A tumor for the first time became perceptible above the pubes, occupying the position and having something of the feel of a gravid uterus; the tenderness increased, with some distension. Once only in the course of this last illness was any interference necessary with the artificial opening into the gut. It was examined with the finger, which it readily admitted; and some scybalous accumulations were washed out of the distended bowel, into which it directly opened. After this no further difficulty was experienced. The tumor increased quickly, with severe constitutional symptoms; aphthæ, and the usual symptoms of failing vital power, showed themselves, and she died on June 10th.

Twenty-four hours after death a *post-mortem* examination was made. The body retained considerable embonpoint; the abdomen was much distended, and partially tympanitic; there were several pints of effused fluid, with floating flakes of lymph, in the peritoneal cavity; but no other marks of recent serious inflammation. A large mass occupied the lower part of the abdominal cavity, reaching nearly to the umbilicus; its size equalled that of the adult human brain, and its appearance so similar, that it might almost at first view have been mistaken for that organ. On section, it presented all the characters of encephaloid cancer; in the interior, and toward the lower portion, were several cells of the size of walnuts, filled with gelatinous fluid. There was much difficulty in tracing the connections and origin of this mass, so much were the character and relations of the organs disturbed by its size and structure; but eventually no doubt remained in our minds that the seat of the disease was the right ovary. The colon, especially the ascending portion, was much enlarged; it could be traced down, still much distended, to the commencement of the sigmoid flexure, where all traces of its structure were lost, and its calibre entirely obliterated by a growth of similar character to that of the ovary, but much denser and smaller. In front, the mass thus formed was crossed by a firm rounded band, which tied it tightly down to the neighboring vessels. The uterus and left ovary were easily distinguishable, and quite healthy. The trocar was found to have punctured the cæcum in the widest and most prominent part; the gut itself was quite healthy, the opening patent, and the connection between the mucous membrane and the skin precisely like that which occurs in other similar positions. There were no marks of inflammation or injury, except the firm old adhesions which had glued the surface of the gut to the abdominal parietes: in fact, nothing could look more natural and free from disease than the new opening and surrounding parts.

It would seem that the first link in the chain of diseased actions was the disease of the ovary, which, by its growth, either directly or through the medium of the ligamentous band, pressed upon and *partially* obstructed the calibre of the gut. The increase of the ovary caused progressive interference with the intestine, and, eventually, total occlusion; which could not, however, have been so close at the time of operation as it was afterward found to be, as it then allowed freely the passage of the long tube, and of very bulky injections. But there can now be no doubt that the sigmoid flexure was the seat of the obstruction, and that Amussat's or Callisen's operation would have been admissible so far as regards the mere relief of the distended bowel. Probably the bowels had lost their expulsive power from our distension; and hence no fecal matter or gas passed, though the stricture was sufficiently imperfect to admit the tube. The further progress of the case is due to the development of

the cancerous masses, and to their mechanical effects on the neighboring parts, but chiefly to the *general* effect of the disease in lowering and extinguishing the powers of life.

The practical object of making this statement is to point out that the operation performed was in *itself* perfectly successful; it at once and perfectly evacuated the canal, and restored the patient from imminent death; it produced no local ill effect; it answered its purpose for eighteen months, and might, as far as appears, have continued to do so to any period to which life might have been prolonged. The development of malignant disease, however, prematurely closed the scene.

ART. 58.—*Guarana in Chronic Diarrhoea.* By Dr. HERVÉ, of Lavour.

(*Bull. Gén. de Thé.*, May 15, 1857; and *British and Foreign Medico-Chir. Review*, Jan., 1858.)

Dr. Hervé, of Lavour, calls the attention of the profession to the employment of a substance which is in common use in South America, and particularly in Brazil, where cases of diarrhoea and dysentery present themselves in a very severe form. Those who inhabit that country know that every family has a little provision of guarana, and that as soon as any one is seized with diarrhoea or dysentery, a little of the substance is scraped and infused in a cup of boiling water, which is swallowed at once with or without sugar. Dr. Hervé, following the advice of Dr. Mialhe, has given it in infusion, in sugared milk, and it is then much more agreeable, and does not lose its special characters. For the last five or six years he has employed this medicine daily; it has never failed him in the most obstinate cases of idiopathic diarrhoea, and almost always it has ameliorated the condition of the patient even in the most serious symptomatic cases. The guarana or *paullinia* has been also employed in the treatment of headaches; and it has succeeded in some cases connected with gastric derangement, but it has failed in others.

The guarana, as a medicine, was first described by Cadet de Gassicourt, in 1817, from a fragment which had been brought to him from Brazil by an officer attached to the French embassy. On this specimen a ticket was fixed, importing that this substance was much employed in Brazil for cases of diarrhoea and dysentery. Towards the close of the year 1822, an inhabitant of the same country, M. Gomès, sent to Méral a complete specimen; it was a mass presenting the form, color, and volume of a sausage; there was joined to it a very rough bone, intended to act as a rasp, and which is always sold with the medicine. The learned botanist, Martius, afterwards occupied himself in discovering the plant which yielded the guarana, and he classed the climbing shrub which furnishes the guarana seeds among the Sapindaceæ, under the name of *Paullinia sorbilis*, in consequence of its employment as a drink. It may be used in the form of pastiles, syrup, pills, tincture and pomade, as well as in powder, and in combination with chocolate.

(E) CONCERNING THE GENITO-URINARY SYSTEM.

ART. 59.—*On Albuminuria in Typhus and Typhoid Fever.* By Dr. GEORGE JOHNSON, Physician to King's College Hospital.

(*Medical Times and Gazette*, Jan. 16, 1858.)

"It not unfrequently happens," says Dr. Johnson, in a recent clinical lecture on diseases of the kidneys, "that during the progress of typhus and typhoid fever, the urine contains one or more of the constituents of blood. The secretion may be simply albuminous in a greater or less degree; or it may contain a notable quantity of blood. A deep blood tinge of the urine is not likely to escape notice, but the urine may be very scanty and very albuminous, without any striking change of color; and in such cases, if your attention has not been particularly directed to this circumstance in the natural history of fever, a very serious complication may be entirely overlooked, and therefore left without remedy. I shall probably have repeated opportunities of pointing out to you

the complication of typhus and typhoid fever with renal congestion, a scanty secretion of albuminous urine, and the early occurrence of drowsiness passing into deep coma. In the mean time, bear in mind this practical advice. During the progress of typhus or typhoid fever, make it a point to examine the urine either daily or every other day, and test it for albumen. This can be done with so slight an expenditure of time and labor that the neglect of it is inexcusable. If you find that the urine is becoming albuminous and at the same time scanty, be sure that serious head symptoms will speedily appear, and give your prognosis accordingly, remembering that, *cæteris paribus*, the danger is great in proportion to the scantiness of the secretion of urine and the amount of albumen; greater, too, when this complication occurs at an early period of the febrile disease than when the malady is more advanced.

"With respect to the treatment of this acute renal disease occurring in connection with continued fever, I would simply remark now, that in every case repeated dry cupping in the loins is admissible and often very effectual. When the urine is very scanty, the albumen copious, and the drowsiness threatening, you may venture to abstract a few ounces of blood from the loins by the scarificator or by leeches, remembering that uræmic coma is more perilous than mere exhaustion, and that the relief of the renal congestion and an increased secretion of urine may be beneficially purchased at the expense of a few ounces of blood. Meanwhile the strength of the patient must be supported by liquid food and stimulants, according to the circumstances and symptoms of each case."

ART. 60.—*On Diuresis occurring in Acute Renal Dropsy.* By Dr. GEORGE JOHNSON, Physician to King's College Hospital.

(*Medical Times and Gazette*, Jan. 3, 1858.)

"What, then," asks Dr. Johnson, in a recent clinical lecture, "is the cause of this copious diuresis, which you will find to occur during the favorable progress of every case of acute renal dropsy? In this case the abundant flow of urine was obviously not the result of diuretic medicine, for none was given. It was, if I may so say, a natural and spontaneous diuresis; and the following is, I believe, the explanation of the phenomenon. During the acute and congestive stage of the renal disease, the constituents of the urine, both solids and liquids, accumulate in the blood, and are then effused into the areolar tissue and the serous cavities. Now, urea is a most powerful diuretic, as is shown by the abundant micturition which follows the injection of this substance into the veins of a dog. As soon, then, as in a case of acute dropsy the congestion of the kidney subsides, and the freedom of its circulation is restored, the retained urea begins to exert its natural diuretic influence; and the resulting copious secretion of urine speedily withdraws the accumulated ordinary solids and water from the blood; and then, by the quickened action of the absorbents, from the areolar tissue and serous cavities. In this way the dropsy is removed.

"I am sure, from my own experience, that in the treatment of acute renal dropsy you gain nothing by giving diuretics. Bear in mind that a diuretic medicine, such as squills, or cantharides, or acetate of potash, acts by stimulating the kidney to an increased secretion, while the drug itself is being eliminated with the urine. If, then, you give such medicines during the early stage of acute renal dropsy, while the vessels of the kidney are gorged, and its circulation nearly stagnant, you impose upon that organ an extra amount of work, without in any degree increasing the eliminative powers of the gland; and if you attribute to the action of your medicine the diuresis which sooner or later follows its administration, you fall into the very common error of mistaking the natural course of a disease towards recovery for the curative operation of drugs."

ART. 61.—*On a Method of ascertaining the Value of the several Reagents employed in discovering the Presence of Sugar in Urine.* By M. BÉNIER.

(*Bull. Gén. de Thé.*, Aug. 30, 1857; *Dublin Hospital Gazette*, Dec. 1, 1857.)

We recollect the eagerness with which the discovery of M. Barreswil's potash-

copper liquor was received, which, applied to the examination of the urine, enabled us to recognize the presence of the smallest quantity of glucose. His method, though so easy of application, was still further simplified by promoting the reaction, by means of a little caustic potash. It was natural that analytical processes so ready should rapidly become popular. Their use, however, was not so certain as was believed, and a source of error seemed to endanger the prospects of this valuable acquisition.

M. Béhier, at a recent meeting of the Société Médicale des Hôpitaux, brought forward so many examples of the uncertainty of these reagents, that if chemistry had not directly furnished us with the means of counteracting this source of error, these analytical processes should have been rejected from ordinary practice. In fact, M. Béhier has shown that the urine of a very great number of individuals affected with various diseases is colored by potash, and even produces a precipitate with the potash-copper liquor.

The uncertainty of the reagent, in these cases, had been observed before, and M. Bequerel had pointed out its cause in his "*Traité de Chimie pathologique*." The following is, according to this writer, a mode of destroying the elements of the urine, which, as well as sugar, produce the coloration of the fluid, and of restoring to these reagents all their value:—

"Take a given quantity of urine, one ounce; treat it with a given quantity of lead, say half a drachm; heat the mixture, when an abundant precipitate of a dirty-white color is immediately produced; filter the fluid, and treat it with sulphate of soda in excess. If, for example, we have used half a drachm of acetate of lead, we should add a drachm of sulphate of soda; heat the mixture again, sulphate of lead is thrown down; filter anew, and we obtain a clear, transparent fluid, containing sugar when it is present, urea, and some trifling salts. Urine so treated reduces potash-copper reagents, and assumes a brown color with potash, only when sugar is present. These two reagents are, therefore, in this manner rendered perfectly reliable.

"If the urine submitted to experiment contains albumen, the solid acetate of lead immediately coagulates this principle, at the same time that it carries down the other organic matters, and we are no longer embarrassed by it in looking for sugar.

"It hence results that whenever we wish to discover the presence of sugar in any urine, whether albuminous or not, we possess in the potash-copper liquor and in potash two excellent reagents; but on condition that we previously treat the urine with solid acetate of lead and sulphate of soda, the double reaction of which will remove all the acid or organic foreign matters which might reduce, decolorate, or turn green the potash-copper liquor, or produce a brown color."

ART. 62.—On Pertussal Glucosuria. By Dr. GIBB.

(*Lancet*, Jan. 30, 1858.)

In the year 1855 the fact was first pointed out by Dr. Gibb that the urine in almost every case of whooping-cough is saccharine, the quantity of sugar varying, generally but small, and sometimes a trace only being present. A considerable quantity he has, however, found on several occasions, the specific gravity being at the same time high, and in general characters the urine has been similar to that of diabetes. A case of pertussis, with urine in this last condition, was recently under Dr. Gibb's care, at the St. Pancras Royal Dispensary, in a child of six years, who had reached the spasmodic stage of the complaint, without any complication, unless the glucosuria be considered as such. The remarkable feature of this case was the rapidity with which the quantity of sugar diminished under the usual plan of treatment recommended by Dr. Gibb in this disease—namely, nitric acid in large doses. The specific gravity of the urine became lower and lower, the quantity of sugar diminished, and, as a cure was established within three weeks, not a trace of it was to be found. It is an interesting fact that nitric acid should so rapidly diminish the glucosuria. This may be effected in one of two ways: either by its curing the pertussis, and a condition with it which must hereafter be looked upon as symptomatic of it; or else the assimilation of the acid prevents the formation of the

sugar. To the last view Dr. Gibb inclines, but he says large doses only will produce this, as experience has proved in his hands. "This condition of the urine in hooping-cough is well worthy of record."

ART. 63.—*On Sugar as an article of diet in Saccharine Diabetes.* By (1) Dr. WILLIAM BUDD; (2) Dr. WILLIAMS; (3) Dr. BURD, of Swansea; (4) Dr. CORFE; and (5) Dr. BENICE JONES.

(*British Med. Journal*, Nov. 14, and Dec. 19, 1857; Jan. 2, Feb. 6, and March 13, 1858; and *Medical Times and Gaz.*, May 1, 1858.)

1. There are probably few (says Dr. Budd), whose attention has been much directed to the subject of diabetes, who have not had misgivings, at one time or another, as to whether the common method of treating this disease by restricting the patient to a purely nitrogenous diet, or, to speak more correctly, to a diet from which sugar and its equivalents are excluded, really fulfils the true indications of the case.

Among the many circumstances that might be referred to as suggesting such misgivings, there comes:—

1. The strong and direct opposition in which this method very often stands to the natural cravings of the patient—cravings which, if not indulged, become, after a time, in many instances, so irresistible as to drive the subjects of them to fraud, in default of other means, in order to procure some portion of the proscribed articles.

It has even been laid down as essential to the success of this method, when conducted in hospital, that the patient should be kept in a room to himself, guarded by lock and key for that special purpose, so ineffectual have any less stringent measures been found to bar the diabetic man from the gratification of his desire for saccharine aliments.

The need of such precautions as these is in itself sufficient to raise serious doubts in the mind of any thoughtful practitioner as to the soundness of the principle on which they are founded. For although the appetites in disease are often perverted, and are rarely to be unreservedly trusted as guides to practice, yet they are often, as in health, exponents of true wants of the system. In some sense or other, they are very real elements of the case, whatever it may be, and not seldom are much more intimate interpreters of its great cardinal relations than any evidence we may be able to draw from more recondite sources. These suggestions may require to be modified by the results of experience, or may even be superseded by a higher knowledge; but in either case, we ought to be very sure of our facts before we venture to act upon them in contravention of strongly declared instincts. In diabetes, it would be difficult to show in either of these quarters sufficient warrant for the little heed which is paid to the natural desires of the patient in the all important matter of diet. We are certainly very far from having attained on the one hand, to a perfect theory of the disease, and our experience as to diet, on the other, is too one-sided to enable us to found any certain conclusions upon it.

2. Another circumstance that tends very much to weaken faith in what may be called the orthodox plan of treatment, is that this plan is not only of little avail in most cases in long postponing the fatal event, but often signally fails in insuring for any length of time the specific object for which it is proposed—that, namely, of keeping down the quantity of sugar discharged with the urine.

3. M. Bernard's important discovery, that the liver forms sugar as readily from nitrogenous as from amylaceous compounds, seems to take from this plan the plea of resting upon a scientific basis.

I am aware of all that may be said in reply to these observations, and I also know that they are open to cavil in various ways; but they sufficiently show, notwithstanding, as it appears to me, that the true principles on which the dietetic treatment of diabetes should be conducted are still open to consideration. We shall see how far this view is borne out by evidence of another kind, to be presently adduced.

Many of the points here touched on are illustrated in a very striking way in

a paper on *Diabetes*, communicated to the French Academy of Sciences by Professor Andral, rather more than two years ago, and published soon afterwards in the "*Annales des Sciences Naturelles*." After remarking that a purely animal diet not only fails, in a great number of cases, permanently to reduce the amount of sugar discharged by the kidney, but that this amount may even go on steadily increasing, in spite of the entire exclusion of saccharine and amylaceous compounds from the food, M. Andral relates the following case in point:—

"One of the most remarkable, and at the same time one of the most conclusive, of facts of this kind, because of the absolute strictness with which the regimen was carried out, is that of a woman who, in the intimate persuasion that an exclusive animal diet could alone cure her, had the courage to subject herself to it during nearly two months, without deviating from it for a single day. During the whole of this time, she ate nothing but roast or boiled meat, and drank nothing but water, to which a little alcohol had been added. At the end of the two months, she was obliged to give up this regimen, which had become insupportable to her; and, besides, she was not better. At the moment of commencing this plan, her urine yielded 27 *grammes* of sugar to the pint. During the early trial of it, the proportion of sugar fell, by degrees, to 20, 15, 12, and at last to as low as 10 *grammes* to the pint; then suddenly, and without the remotest ground for supposing that any breach of rule had occurred, the proportion of sugar voided began again to rise. We now saw it progressively amount from 10 to 15, 20, 30, 44, 49 *grammes* to the pint; and there was, moreover, no single day in which this principle was altogether absent. Further, what is particularly worthy of remark, is that, when we first began to mix eggs, milk, a small quantity of bread, and vegetables with the meat, and to substitute wine and water for the alcohol and water, the sugar, contrary to all expectation, began to diminish anew, falling to 30, 26, and at length to 10 *grammes* to the pint. Then, again, after the lapse of some days, the regimen remaining unchanged, the sugar rose once more, until, at the end of three weeks from the first adoption of this mixed diet, the urine contained 54 *grammes* to the pint."

M. Andral adds, that this is far from being the only instance in which he has seen a large amount of sugar continue to be discharged in the urine in this disease, in spite of a purely animal diet; and he cites, among others, the extreme case of a diabetic patient, "who lived entirely on flesh, and whose urine contained, notwithstanding, the enormous quantity of 82 *grammes* of sugar to the pint; and as this man passed eight pints of urine every twenty-four hours, it follows that he expelled from his system, and consequently produced in the same period of time, as much as 656 *grammes* (or more than 20 ounces) of sugar."

In the case of which it is the principal purpose of this paper to give some account, the same general fact was observed. The amount of sugar voided went on largely and steadily increasing, in spite of the rigid observance of a diet from which sugar and amylaceous compounds were excluded. But this case exhibited, in addition, the much more remarkable spectacle of a considerable and permanent reduction in this amount occurring concurrently with the recovery of the patient from a state of wasting and extreme weakness to one of good condition and comparative health, on substituting for this diet a scheme which not only included a large proportion of vegetable food, but more than half a pound daily of sugar in substance.

CASE.—The subject of this case, Joseph Snailum by name, an agricultural laborer, 18 years old, was admitted on March 19th, 1857, into Ward 6 of the Bristol Royal Infirmary, where he still remains under observation. At that time, he had already been fifteen months ill. As in most cases of the kind, his malady had stolen insensibly upon him. Frequent calls to make water, by night and day; an unnatural thirst, together with loss of flesh and gradually increasing weakness, were the first circumstances that excited his attention. He had been unable to work almost from the beginning. Meanwhile, these complaints had gone on gradually increasing. For some time before he fell ill, he had been working in wet and marshy ground; but, apart from this, he

could assign no distinct cause for his failing health. His immediate relatives appear to have been healthy people.

On admission, his state was very characteristic. A peculiarly dry and harsh skin, a brown and dry tongue, ardent thirst, and a voracious appetite were the leading symptoms. The pulse was only 68 in the minute. He was much reduced in flesh and strength. For the first week, the quantity of urine passed varied from nine to twelve and a half pints; its specific gravity, from 1039 to 1042. The presence of sugar in the urine was ascertained by the copper test, and by the extraction of sugar in bulk from the secretion. Within a few days after his admission, he was put on a diet consisting entirely of meat, eggs, a carefully prepared diabetic bread, a small quantity of butter, and a few ounces of wine. Under this regimen, contrarily to what usually happens, the diabetic symptoms began to grow worse almost from the first. The quantity of urine passed rose, in the course of a week, from nine to seventeen pints, its specific gravity remaining much the same. The patient's thirst increased, and he became daily thinner and weaker. At the end of that time, an attack of diarrhoea occurred, which lasted, with more or less severity, very nearly ten days. During that interval, he took very little food, and the precise amount of urine passed could not be estimated. When the bowels had become settled, he was found to be voiding from seven to ten pints of urine *per diem*, of specific gravity ranging from 1036 to 1044.

On March 31st, the stomach rebelled so much against the diabetic bread, that six ounces of common bread were allowed in place of it; and these six ounces were soon afterwards raised to sixteen. His health now began to improve somewhat, and he gained a little in flesh and strength. The diabetic symptoms proper remained much as before.

This improvement, however, was not of long continuance. In the beginning of May, he had grown so weak as to be obliged to keep his bed, and I had become very anxious about him. His tongue was very dry and brown; his pulse had become frequent; and he was much harassed by cough and pain in the chest. He seemed, in fact, to be rapidly entering upon the downward course which leads to the fatal event so common in such cases.

Many considerations, which I have not now time to detail, but some of which have already been hinted at, had long made me desirous of trying what would be the effect of freely giving sugar in such circumstances.* I was turning the matter in my mind, when I accidentally saw it stated in the "*Gazette Médicale*" that M. Pierre had already tried this measure in one case with very marked success. I, therefore, on May 22d, entirely reversed my plan of treatment, and ordered the patient to be put on a varied and generous diet, with the addition of eight ounces of sugar candy and four ounces of treacle daily. This change had very little effect at first, either on the quantity of urine passed or on its specific gravity. It is worthy of remark, however, that what little there was was in both respects on the side of diminution. But the effect on the general health was marked and immediate. The new articles of diet were taken with great relish, and the patient improved in health and strength from day to day. What is especially worthy of attention is, that, as he became stronger, the diabetic symptoms also gradually lessened—to such a point, indeed, that on July 22d, exactly two months after the adoption of the new scheme, only three pints of urine, of specific gravity 1032, were passed in the twenty-four hours; and yet, at this very time, the patient was taking, in addition to much vegetable food, as much as *eight ounces of sugar and six of honey daily*; the honey having been substituted, at his own desire, for the treacle previously given. Since that time, the quantity of urine passed has somewhat risen, its present daily average being from four to five pints, of specific gravity varying from 1032 to 1034. In other respects, his state is very satisfactory. He is ruddy, looks in very good condition, and declares himself to be strong and

* This idea was first suggested to me by my colleague, Mr. Prichard, on the simple ground of supplying to the system the particular article which is running to waste, and the loss of which appears to be the principal cause of the damage sustained by the constitution as the disease advances.

well. His tongue is moist; he no longer suffers from thirst; and his skin, from being dry and harsh in the extreme, has become soft and natural. He has increased in weight from 107 lbs., which was what he weighed shortly before beginning the sugar treatment, to 126½ lbs.

The patient continued steadily to improve under the same plan, from the date of my former communication up to the 20th October last. During this period, only one circumstance occurred to call for remark. In the latter part of September and beginning of October, he was taking eight ounces of sugar candy and six ounces of honey daily. On October 6th, the honey was left off at his own desire, he having, as he said, "become tired of it." The week before it was given up, he gained one pound in weight. In the fortnight that followed, he gained four pounds and three-quarters. Whether this increase in the rate of improvement was due or not to giving up the honey, I will not pretend to determine. The register which was kept of the state of the urine at that time has unfortunately been mislaid; but I am enabled to say, from memory, that neither the specific gravity of this fluid, nor the quantity passed, were sensibly affected by the withdrawal of this article of diet.

On October 20th, I allowed the patient to go home for a few days. He was at that time better than he had ever been since the commencement of his illness. He looked strong and well, and weighed 130½ lbs., being more than twenty pounds heavier than when he commenced the new treatment. The average daily urine was five pints, of specific gravity, ranging from 1031 to 1034.

It may serve as some indication of the amount of improvement that had occurred under the sugar plan, to mention that, finding no conveyance at hand, he walked the whole way to his father's house on Oldland Common, a distance of nine miles from the Infirmary. This journey, he assured me, he accomplished without the slightest fatigue. While at home, he took his meals with the rest, and his fare was the common fare of a farm laborer. All special treatment was for the time left off. Unfortunately, he took advantage of his freedom from restraint to drink freely. During his absence, he never took less than three quarts of cider daily, and once, by his own confession, he was "the worse for liquor." Although he was only three days away, it was obvious, on his return, that he was not nearly so well. His skin had become harsh; his tongue was dry and brown; he was very thirsty; had lost his appetite, and had grown rapidly weak. The day after his return, he passed more than eight pints of urine, of specific gravity 1030. In the week that began with his three days of absence, he lost more than five pounds in weight. In the week following, his weight fell still further from 125 lbs. to 120 lbs. During this interval he never passed less than eight pints of urine, and more commonly, ten pints, daily. On one day the quantity rose to eleven pints. In specific gravity, it ranged from 1035 to 1038.

On his readmission, he was placed, as to common articles, on the same diet as before—a diet which included a liberal allowance of bread and butter, meat and eggs, and some malt liquor. In the way of sugar, he was now confined to cane-sugar, of which I gave him eight ounces daily. Finding, at the end of ten days, that he did not improve, this quantity was increased to twelve, and soon after to sixteen ounces, daily.

At the end of a fortnight, he began again to mend. His tongue became moist, his thirst abated, and he began to recover his lost flesh. On December 8th, he weighed 126 lbs. On the same day he passed eight and a half pints of urine, of specific gravity 1034.

On January 8th, he complained of having more sugar than he liked, and four ounces were accordingly struck off at his own request, and six other ounces on the 12th of the same month, leaving only six ounces for his daily use. This reduction in the quantity of sugar seemed to have a beneficial effect; for, on the week following, his weight had risen to 127½ lbs., and his urine had fallen to six pints and a half, of specific gravity 1036.

Since the last date, with the exception of slight fluctuations in weight from week to week, his condition has undergone little variation.

From January 10th to the present date, the daily average urine has been

five pints and a half, the extremes during the same period being four pints and a quarter on the one hand, and six pints and a half on the other. The average specific gravity of the urine during the same period has been 1034, the extremes being 1031 and 1040. The last figure was only observed on a single occasion. I may add, that the specific gravity has always been taken on the mixed urine of the twenty-four hours.

During the greater part of the time to which these notes refer, the patient's dietary has consisted of the following articles: sixteen ounces of bread, three ounces of butter, three eggs, three chops, and one pint of beer, besides the sugar, which has been given in varying quantity, as already indicated. I have considered it as an essential part of the treatment that the food should be nutritious and substantial. It is quite conceivable that, under opposite conditions, the result might be widely different.

It will be seen from the memoranda given above, that, although the patient has not quite regained the point at which he stood before the relapse that occurred during his temporary absence from hospital, the resumption of the sugar treatment has been followed by exactly the same results as before: *i. e.*, an increase of weight, great improvement in general health, and a very considerable diminution in the quantity and specific gravity of the urine, and by implication, therefore, in the quantity of sugar excreted by the kidney. The general state of the patient is now very satisfactory. His appetite is good; he does not suffer from thirst; his muscular power is considerable; his complexion is florid, and his look altogether that of a healthy young man. He is still diabetic, but much less so than he was: and the system seems now to be protected from the waste and deterioration which the disease was so rapidly producing before he began to make sugar a principal article of diet.

II. Encouraged by Dr. Budd's report of the previous case, Dr. Williams made use of sugar as a remedy in two cases of diabetes, in which the symptoms were quiescent and stationary, and in which a non-saccharine dietary had been vigorously adhered to previously. The patients were intelligent gentlemen, aged respectively 34 and 38, thin, hard, wiry-looking persons, who had suffered no loss of flesh and weight during the previous six months. In both, also, the disease had been in existence for about two years. In Case A the urine had scarcely ever, for six months previously, varied from 1040 in specific gravity, and three pints in quantity in the twenty-four hours; that in Case B the conditions were very nearly the same, although not quite so unfluctuating.

In twenty-four hours after the change of diet in Case A, the urine increased from three pints to four pints and a half, and from 1040 in specific gravity to 1042. In forty-eight hours under the same diet the quantity rose to five pints and some ounces, and the specific gravity to 1050. In another twenty-four hours, being the third day from the commencement of the experiment, the volume rose to six pints, and the specific gravity to 1056.

Case B exhibited almost precisely the same change. The urine increased in quantity and density in the same time in an equally remarkable degree.

Neither of the patients could be prevailed upon to continue the experiments any longer. Both grew rapidly worse in every respect, and became rapidly alarmed. The thirst grew more and more unquenchable. The skin became drier and drier; the bowels were every day more constipated; the mind passed from a calm state into a condition of rapidly increasing excitement, in one bordering almost on mania. The symptoms in every sense exchanged the passive for the active condition. Both patients regained their former tranquil feelings by the use of opium for three or four nights; and it was only slowly that the urine returned to its former physical properties. These two gentlemen emerged from this ordeal with the deeply-rooted convictions that the old system was the best; that practice is above and beyond theory; that the rule of contrarieties is preferable to that resting its airy claims on fancied similitudes.

III. Dr. Burd's case.

M. M—, *æt.* 30, married, came under my care in the Salop Infirmary, on November 14th, 1857, suffering from diabetes mellitus in an advanced stage.

She is one of a healthy family, and resides in a healthy village in North Wales, where she has been under regular medical attendance for some months. She is extremely emaciated, and in a very weak and depressed state both of mind and body. She has had nine children, and says that she was quite well up to the period of her last confinement, ten months ago, at which she had considerable hemorrhage, causing great weakness and prostration, which rendered her unable to nurse her child. She has menstruated twice since her confinement, but not during the last seven months, from which period she dates her illness, from which she has been known to be suffering from diabetes, and has been treated accordingly. The disease has, however, steadily progressed in spite of remedies. On her admission, she weighed seventy-nine pounds, and was passing six quarts of urine in twenty-four hours, of specific gravity 1036. I ordered her to take two pints of milk and two pints of porter daily, with sick diet and no medicine. This plan she continued for a week, seemingly somewhat improved by the liberality of her diet; and on November 22d (a week after her admission), I determined to try the effects of a saccharine treatment. She was ordered to go on with the sick-diet, milk, and porter, and to take half a pound of honey and half a pound of white sugar daily. She rather liked the idea of this novel treatment, and commenced it willingly.

From the very first commencement, however, she became daily worse in every way; the pulse, before very quick, became quicker; the thirst more urgent; the tongue more dry; the urine increased both in quantity and in specific gravity. Sickness came on; and the bowels became very relaxed. She lost all desire for food; had restless, bad nights; and her debility became extreme, so much so, that her evacuations were passed involuntarily; and I entertained great fears that she would rapidly sink. These untoward symptoms were met, as they arose, by appropriate remedies, but in vain; and, at the end of a week, it was found necessary to stop the supply of sugar. The quantity of the urine had during the week risen from six quarts *per diem* to twelve; the diarrhoea at the same time being excessive. Under the free use of opium and stimulants (the sugar being omitted) she rapidly improved, and in the course of another week was able again to get up, and to walk about her ward, the urine being again reduced to six quarts.

IV. *Dr. Corfe's case.*

This case is that of a man, *æt.* 40, with unequivocal solidification in the apex of the right lung, who, for two months, had been passing large quantities of saccharine urine of *sp. gr.* ranging from 1046 to 1052. A non-saccharine diet was strictly enjoined, but as every day the symptoms assumed a more dismal character, the whole line of treatment was changed. He was now directed to take, *zinci sulph.*, *gr. ij*; *cinchoninæ sulph.*, *gr. j*; *extracti lupuli*, *gr. ij*, in form of pill, with each meal, in lieu of the creasote mixture, and to continue the cod oil. He was desired to use the following articles of diet: fat mutton and beef, and the same meats in form of soups; fresh white fish, boiled; oysters, poultry, game, tripe, and any one of the following vegetables daily—parsnips, turnips, carrots, spinach, greens, broccoli, endive, lettuce, celery, and to abstain from bread and all farinaceous food and potatoes. His drink was directed to consist of a cup of coffee, with half an ounce of candy sugar, in the morning; a tablespoonful of rum in a glass of water, with the same quantity of sugar candy and five grains of carbonate of ammonia, at luncheon; and two glasses of claret at dinner. In the evening he was desired to take one ounce of honey on bread, in lieu of butter, and to sup on boiled milk, with an egg, &c.

After having continued this line of treatment from December 17th to the 30th, the following results were obtained: the urine increased from four to eight pints in twenty-four hours, the *sp. gr.* was 1050; it gave proof of containing, by polarized light, 112 grains in 1000 pints, or rather more than two ounces in each pint, and yet he had not lost in weight more than one pound. It should be here remarked that he frankly acknowledged that he had not followed the directions of treatment in so strict a manner as he could have wished; for although he felt stronger and more lively in mind, he had been to several festive parties, and had eaten freely of potatoes and bread on several occasions, and had drunk beer or bottled stout. But after being reprimanded severely

for his indiscretion, he faithfully adhered to the prescribed form of dietary. The pills were now increased one grain of each of the sulphates in strength, and on the 17th January the urine had a sp. gr. of 1038, containing 83 grains in 1000 of sugar, that is, a diminution of more than a quarter of an ounce in each pint of fluid, and for eight days prior to this report the quantity never exceeded four pints in twenty-four hours. I now begged him to abstain wholly from all farinaceous food, including bread, until the next report, which has been forwarded to me this day, January 29th, and which I transcribe.

"My dear Sir: Enclosed you will receive my report, which I think will speak for itself. I can now reverse my tale, and say, 'the bones which were once seen are now hidden from sight;' I am, of course, with this increase of flesh, much stronger. I feel some little difficulty in walking upstairs, but not to the extent I formerly did by any means; I get a free perspiration, my appetite is good, and the cramps are quite gone. When I meet any one whom I have not seen for eight or nine days, they want to know if my face is not swelled; my clothes, which hung about me as though not belonging to me, I am obliged to alter in the buttons. I have found a good substitute for bread in parsnips. The fat ham has the desired effect on my bowels; of course it checked my progress in weight, which has gradually risen thus:—

	Weight.	Urine.	Fluids taken.
	<i>lbs.</i>	<i>Pints.</i>	<i>Pints.</i>
1858.—Jan. 15	120	5	5
" 18	121	4½	4½
" 21	124	3	3
" 25	129½	2½	3
" 28	132	3½	3½

"I can now attend to business comfortably; I can walk four miles an hour well. Perspired freely last night in bed, and exertion to-day induces a moisture also."

The analysis of the urine this day confirms the foregoing remarks on the positive improvement in health. Instead of presenting its usual amber-colored clear character, it is now muddy, and deposits some lithates. The muddiness is removed by heat. It is acid, and of sp. gr. 1032, and is found to contain only twenty grains per 1000 of sugar; indeed, the indications now are so faint, Mr. Heisch observes, that it is not easy to define the precise quantity, as before, by means of polarized light.

V. Dr. Bence Jones's cases.

CASE I.—E. C., *æt.* 12, was admitted in 1854 into St. George's Hospital. She was said to have been ill six weeks, with pains in the bowels, wasting, thirst, excess of urine, sp. gr. 1042, and ravenous appetite; drinking quarts of water, and eating as much bread as she could get.

After three days of animal diet *only*, she passed 3 pints of urine, sp. gr. 1032, containing some sugar. In six weeks' time the urine was reduced to 2½ pints, sp. gr. 1012, and containing no sugar. She had not gained in weight above one pound.

A very little bread was then given. The next day the water was 3 pints, sp. gr. 1015, and contained sugar. The bread was continued the next day, and then there was sugar. The following day no bread was taken, and there was no sugar. For three days bread was again taken, and sugar appeared; the following three days no bread was allowed, and the sugar disappeared. Again the bread was given in small quantity and the sugar reappeared, and when omitted disappeared. The bread was then finally omitted. Two pints of milk extra were given, and no sugar appeared the following day; the urine had a sp. gr. 1012, with no sugar. Potatoes were then given, and the next day the sp. gr. was 1019, and much sugar was present. The potatoes were stopped, and a pint and a half of porter was given, and no sugar appeared. This was continued for ten days, and still no sugar was present in the urine.

Two ounces of lump sugar were then given. The urine had a sp. gr. of 1012. No sugar appeared in the urine. This was continued four days, and no sugar occurring, a small quantity of bread was also given. The sp. gr. rose

from 1009 to 1022, and much sugar appeared. The bread was omitted, and an ounce of honey was given daily for a week, no sugar appearing; two ounces of honey were given, and no sugar appearing some bread was given, the sp. gr. rose from 1010 to 1030, and much sugar was present. The honey was continued without bread, and some sugar was found in the urine.

As it was desirable to determine more accurately the amount of sugar produced in the urine by the bread, I examined the water by means of Soleil's saccharometer; 1st, when some bread was taken; 2dly, when no bread was taken; 3dly, when the third of a pound of lump sugar was taken and no bread; 4thly, when the sixth of a pound was taken. Then when the sugar was omitted. After this porter was given, and the effect on the urine determined. Lastly, a minimum quantity of bread was given. The following table gives the results of the experiments.

Dist.	Sp. gr. of urine.	Amount of sugar in urine.
June 30, animal diet only . . .	1014	None.
July 1, " . . .	—	None.
" 2, animal, with bread . . .	1025	19 grs. to each oz.
" 3, animal only . . .	1003	No trace.
" 4, " . . .	1007	"
" 5, animal, and $\frac{1}{2}$ lb. of sugar . . .	1027	15 grs. to each oz.
" 6, " $\frac{1}{2}$ lb. " . . .	1016	4 grs.
" 7, animal only . . .	1020	No trace.
" 8, " . . .	1018	"
" 9, animal, and pint of porter . . .	1015	"
" 10, " . . .	1018	"
" 11, " $1\frac{1}{2}$ pt. of porter . . .	1020	"
" 12, " . . .	1022	"
" 13, " . . .	1015	"
" 16, " with 4 oz. bread . . .	1022	Trace of sugar.
" 17, " 2 oz. " . . .	1025	Trace.
" 18, " " " . . .	1016	"
" 19, animal only . . .	1015	No trace.

Unfortunately, the record of the quantity of urine passed daily has been mislaid; on this account I was anxious to repeat the experiments with sugar on another diabetic patient, and for this purpose Dr. Page transferred to me a patient who was under his care in St. George's Hospital.

CASE 2.—A. T. was admitted into St. George's Hospital, Jan. 20, 1858, æt. 43, married. She had been for two years under treatment at a dispensary. She was much emaciated, with pale, sallow face, and sunken eyes. The catamenia had been absent for fifteen months. She complained of excessive thirst and unappeasable appetite. She stated that her weight varied between 75 and 80 lbs., and that the urine had varied from 5 to 8 quarts in twenty-four hours. With a restricted, but not absolute animal diet, and 3 grains of opium, the urine varied between $4\frac{1}{2}$ and $7\frac{1}{2}$ pints. Sp. gr. 1030 to 1045.

On the 23d of March she came under my care; the diet then was between 5 and 8 ounces of bread, 2 mutton chops, 2 eggs, 2 pints of milk daily, and 2 grains of opium, with some chalk mixture for diarrhœa, which began the previous day. She weighed 5 st. 6 lbs.; the quantity of urine was 5 pints; sp. gr. 1034. She drank only 3 pints of fluid, she said, and the quantity of sugar passed in the urine was 31 grs. to the ounce, or 3100 grs. in the 5 pints.

The 24th, the same diet and pill. There was no diarrhœa. She weighed 5 st. 5 lbs.; she passed 5 pints urine; sp. gr. 1042; she drank 3 pints. The sugar was 35 grs. to the ounce, or 3500 grs. in 5 pints.

The following day, feeling pretty well, same diet and medicine; weight 5 st. 6 lbs.; urine 5 pints; sp. gr. 1042; 3 pints of fluid were taken in twenty-four hours; the amount of sugar was 36 grs. to the ounce, or 3600 grs. in twenty-four hours.

The 26th, everything the same, except that 8 ozs. of lump sugar were taken. She weighed 5 st. 6 lbs. The urine was $5\frac{1}{2}$ pints; sp. gr. 1042; she drank 4 pints; the sugar was 39 grs. to the ounce, or 4290 grs. in twenty-four hours.

27th.—The same as yesterday, but diarrhoea commencing, chalk mixture was given. She weighed 5 st. 4 lbs.; the quantity of urine was 6 pints; sp. gr. 1042; she drank $3\frac{1}{2}$ pints of fluid, and had eaten her usual quantity of bread, about 7 ozs.; the amount of sugar was 40 grs. to each ounce, or in twenty-four hours 4800 grs.

28th.—Urgent diarrhoea; bowels acted seven or eight times. Violent hysterical fit. Ether mixture and opium injection were given. Her weight was 5 st. 4 lbs. The quantity of urine, 5 pints; sp. gr. 1042, containing 38 grs. of sugar to each ounce, or 3800 grs. in twenty-four hours. She drank only 3 pints. The sugar was omitted.

29th.—The diarrhoea was stopped. The weight was 5 st. $5\frac{1}{2}$ lbs.; urine, $5\frac{1}{2}$ pints, sp. gr. 1042, containing 38 grs. to the ounce, or 4130 grs. in twenty-four hours.

30th.—No diarrhoea; no sugar; weight, 5 st. 6 lbs.; urine, 5 pints; sp. gr. 1042; contained 36 grs. to the ounce, or in twenty-four hours 3600 grs.

31st.—Still no sugar; weight 5 st. $6\frac{1}{2}$ lbs.; urine, 5 pints; sp. gr. 1043; contained 36 grs. to the ounce, or 3600 grs. in twenty-four hours.

April 1st.—Bowels confined; 8 ounces of sugar were taken; the weight was 5 st. $5\frac{1}{2}$ lbs.; the quantity of urine was 7 pints; sp. gr. 1040; containing 37 grs. per ounce, or 5180 grs. in the twenty-four hours.

2d.—Feels very low and weak; no sugar was taken; the weight was 5 st. 5 lbs.; urine, 5 pints; sp. gr. 1041, amount of sugar, 36 grs. to the ounce, or 3600 grs. in twenty-four hours.

3d.—Five pints; sp. gr. 1040; sugar, 35 grs., or 3500 grs. in twenty-four hours. She complained of the sugar, and the experiments were discontinued. The following table brings the effect of the sugar clearly to view:—

	Weight.	Quantity of water.	Sp. gr.	Sugar in 24 hours.	Fluids taken.	Bread.	Sugar.
	st. lbs.	Pints.		Grains.	Pints.	oz.	
1st day . . .	5 6	5	1034	3100	3	...	None.
2d " . . .	5 5	5	1042	3500	3	...	"
3d " . . .	5 6	5	1042	3600	3	...	"
4th " . . .	5 6	$5\frac{1}{2}$	1042	4290	$\frac{4}{2}$	...	8 oz.
5th " . . .	5 4	6	1042	4800	$3\frac{1}{2}$	7	8 "
6th " violent diarrhoea } . . .	5 4	5	1042	3800	3	$7\frac{1}{2}$	8 "
7th " . . .	5 $5\frac{1}{2}$	$5\frac{1}{2}$	1042	4130	3	5	8 "
8th " . . .	5 6	5	1042	3600	3	7	8 "
9th " . . .	5 $6\frac{1}{2}$	5	1043	3600	3	7	8 "
10th " . . .	5 $5\frac{1}{2}$	7	1040	5180	3	7	8 "
11th " . . .	5 5	5	1041	3600	3	$8\frac{1}{2}$	None.
12th " . . .	5 5	5	1040	3500	3	7	"

So that the amount of sugar in the urine, and the quantity of urine, were increased on the days when sugar was eaten, excepting only on that day when violent diarrhoea existed.

In order to determine in which stage of diabetes this patient was, she was persuaded to give up all vegetable food of every kind, and all bread. Three eggs were taken in addition to the diet of meat and eggs which she was eating.

At the end of the

1st day of absolute animal diet she weighed 5 st. 5 lbs. The urine was 4 pints; sp. gr. 1042; it contained 31 grs. of sugar to each ounce. She drank 3 pints.

2d day of absolute animal diet she weighed 5 st. 4 lbs. The urine was 4 pints; sp. gr. 1041; it contained 28 grs. of sugar to each ounce.

3d day, animal diet; weight 5 st. 4 lbs. The urine was 4 pints; sp. gr. 1040; the sugar was 27 grains to the ounce.

The following day 10 ounces of bread were eaten, and the three eggs were

omitted; the weight was 5 st. 4½ lbs. Four pints and a half of urine were passed; sp. gr. 1040; the sugar was 34 grs. to each ounce.

The following day, with the same bread; urine, 4 pints; sp. gr. 1041; sugar, 35 grs.

The following table will show the effect of an absolute animal diet, and of bread and meat:—

	Weight.	Quantity of water.	Sp. gr.	Sugar in 24 hours.	Fluid taken.	Bread.
	st. lbs.	Pints.		Grains.	Pints.	
1st day . . .	5 5	4	1042	2480	3	None.
2d " . . .	5 4	4	1041	2240	3	"
3d " . . .	5 4	4	1040	2160	3	"
4th " . . .	5 4½	4½	1040	3060	3	10 oz.
5th " . . .	5 4½	4	1041	2800	3	10 "

Each day was reckoned from one P. M., when the patient was seen; so that bread was taken on the morning of the first day, and by the results obtained on the fourth and fifth days, when bread was eaten, it is probable that the amount of sugar found in the urine of the first day was increased in consequence of the early meal not being meat alone. The wrong conclusions that might be drawn from the specific gravity of the urine alone is well shown in these tables, thus:—

	Sp. Gr.	Sugar in 24 hours. Grains.
When animal diet alone was taken . . .	1040	2160
With animal diet, and bread 10 oz. . .	1040	3060
With animal diet, bread 7 oz., sugar 8 oz.,	1040	5180

I have already said that it would be sufficient answer to Dr. Budd's cases, that I have seen other patients on the same treatment as regards diet, get worse instead of better; the analyses of the urine in the two cases I have here given, the one in the second stage, and the other in the third stage of diabetes, will show what a diet containing sugar and bread does effect in increasing the amount of sugar in the urine: and from all I have seen of the disease, it is better practice to follow the indication of lessening the amount of sugar in the urine, than to endeavor to cure the disease, as I have known a homœopath try to do, by a specific of sugar and starch.

ART. 64.—On "*Surgical Diabetes.*"

By Mr. ERICHSEN, Surgeon to University College Hospital, &c.

(*Dublin Hospital Gazette*, Jan. 15, 1858.)

Mr. Erichsen stated recently to his class at University College Hospital that, in reading over some of the curious and startling experiments of M. Claude Bernard, where that distinguished physiologist was able to produce artificial diabetes in large dogs and other animals by imitating concussion of the brain, by striking the animals with a hammer! he was led to examine the urine of some of the patients brought to University College Hospital suffering under "concussion," and he was astonished to discover large quantities of sugar in the urine! Whether this arises from the delicate parts of the fourth ventricle giving way, and containing clots of blood, or general derangement or "contusion" of the brain substance, Mr. Erichsen is not yet in a position to state. In one case of concussion recently under Mr. Erichsen's care, a large quantity of cerebro-spinal fluid was observed trickling away, a very formidable symptom in general; yet the case did very well. In another case, a man fell a distance of fourteen feet, coming down on the back of his head; he was severely bruised, and was taken up stunned, suffering from concussion. When admitted to hospital, it was noted that the sensibility of his limbs was good, but all power of movement was abolished. His urine was examined about this time

by Dr. Harley, and found to contain sugar in abundance, and this ingredient seemed to increase every day till indistinct signs of mobility or power of motion returned to the limbs, when it began gradually to diminish, according as the paralysis of motion subsided. It was curious to observe that sensibility of the limbs was good, even at a time that motion was abolished.

ART. 65.—*On the Diagnosis, Pathology, and Treatment of Movable Kidneys.* By Dr. HARE, Assistant Physician to University College Hospital.

(*Medical Times and Gazette*, Jan. 2, 16, and 30, 1858.)

After relating four interesting cases of movable kidneys, Dr. Hare proceeds to make the following general remarks:—

"*Diagnosis.*—In very stout individuals, or when from any cause the parietes are particularly rigid and unyielding, the detection of a movable condition of the kidneys, even when present, may be very difficult or even impossible; but under ordinary circumstances, such is by no means the case. Nor when the presence of a movable tumor, such as I have described, has been determined, is the diagnosis of its true nature a matter of great difficulty. The physical signs are of themselves almost sufficient to enable one to come to a positive conclusion on the subject; the chief errors having occurred when practitioners have been unaware of the occasional occurrence of this movable condition of the kidneys. Under such circumstances, the kidney has been mistaken for the spleen, 'an abscess,' some enlargement of the liver, or for a tumor of a malignant character; while I have long felt assured that some of the so-called 'phantom' and 'anomalous' tumors, tumors of which descriptions have been published, have in reality been kidneys presenting this unusual mobility.

"Where the right kidney is enlarged and fixed in position, it is now and then very difficult to make an accurate diagnosis between it and some form of enlargement or tumor of the liver, but this organ never presents any mobility such as does the movable kidney. In several instances, the condition of the right renal organ has been associated with enlargement of the liver, but the diagnosis is not then necessarily rendered more difficult, as the margin of the liver can generally be made out by palpation and percussion, and the kidney is found to slip readily beneath it. An enlarged gall-bladder is sometimes very movable, but the position which it occupies is different from that of the organ under consideration, being usually more oblique towards the left iliac fossa; the lower end of the enlarged gall-bladder is also more globular; it feels less hard under pressure, and sometimes fluctuation in it can be detected; besides, though the gall-bladder may be very movable, it is the distal end only of it which is so, the other being attached to the liver. On the left side, the spleen is the organ most likely to be confounded with the kidney; but if it reached as low as this organ it would be much larger than the kidney is, and when enlarged it is never, as far as I know, so mobile as is the so-called movable kidney; the spleen is also more superficial, and usually so much as to be close to the parietes and dull on percussion, while the kidney (of its normal size) is covered more or less by intestine. It must be remembered, however, that in exceptional cases a coil of intestine may get between the abdominal parietes and the enlarged spleen, and so give rise to a resonant stroke-sound over that organ; while, on the other hand, if the movable kidney be detrued downwards, and kept in front, it gives rise, *pro tempore* at least, to dulness on percussion. An ovarian tumor differs in its attachments; it is not so limited to one side of the abdomen, if, at the same time, it extends high up towards either hypochondrium; in other words, if an ovarian tumor extend high into the abdomen, it has always a considerable transverse diameter. A collection of feces in the colon is different in form and feel, nor will it slip into the hypochondriac region like the kidney. A cancerous or tuberculous mass growing from the omentum or mesentery, or a floating tumor in the peritoneum, is most likely to be confounded with a movable kidney; but the loose tumors are extremely rare of a kidney size, and a careful attention to the shape of the movable kidney, and the extreme smoothness of the surface, will generally sufficiently solve the diagnosis, while the detection of the hilus

of the kidney, which, in favorable cases is quite possible, will place the matter beyond a doubt; it will be remembered, also, that as the kidney is detruled downwards, it assumes more and more of an oblique direction, the hilus looking more upwards, owing to the peculiar attachment of the organ. The absence of the kidney in its normal position, and the consequent depression there (when this occurs), are likewise important guides in forming an opinion; besides which, the absence of any general cachexia, or of the symptoms of other disease, and the fact, sometimes ascertained, that the tumor since its first discovery has remained perfectly stationary as regards size, &c., will give some help in coming to a correct diagnosis.

"Pathology, Causes, &c."—This condition of the kidneys may be either congenital or acquired. Where these organs are situated permanently low down in the abdomen, an abnormal origin of the renal arteries has been almost always met with; but in the cases under consideration, though the vessels have been found lengthened, their origin has been at the usual position, and I do not think that some lengthening of the vessels is a necessary proof of the mobile condition of the kidneys having been congenital. It is well known how readily the vessels of the ovaries, for example, accommodate themselves to the altered position of these organs when, from adhesion to a pelvic tumor, they are removed perhaps to a distance of many inches from their natural position. The condition is sometimes associated with an enlargement of the liver, which may tend to push down the kidney. A large calculus in the pelvis of the organ will sometimes drag down the kidney, but no condition of this kind is at all essential to the detrusion of the organ, for in almost every instance in which a *post-mortem* examination of such cases (the patients dying of other disease) has been made, the kidneys have been healthy, as stated by Oppolzer, Rayer, &c. The latter author mentions that the movable condition of the kidneys is sometimes coexistent with a displacement of the intestine or of the uterus (though it does not seem clear how the latter cause could produce such an effect), and that 'frequent pregnancies, efforts to carry or lift heavy weights, have appeared in some cases to be the cause of this displacement of the right kidney, which in other instances has been inexplicable.' Emaciation in those who have been stout appears to be one cause of the mobility of the kidneys. Oppolzer observed that while the organs themselves were healthy there was a deficiency in the cushion of fat, and an extension of the renal vessels; while Mr. Adams, with reference to the case he records (*loci cit.*) remarks: 'The only peculiarity remarkable was that the kidney appeared bound down in this situation more loosely than usual, and the old lady, from having been very fat, had become somewhat thinner, and her integument appeared very lax throughout.' Rayer mentions a case in which the peritoneum, instead of passing over the anterior surface of the kidney, enveloped it at every part except at the hilus, and thus formed for it a true mesentery nearly two inches in length; and another example is alluded to by Dr. Priestley as having been observed by Dr. Simpson, in which 'the peritoneum was found reflected over the posterior surface of the kidney, giving it thus a mesentery, and allowing it very considerable motion on the right side of the abdomen.'

"Treatment."—Owing to mistakes in the diagnosis of affections of this kind, patients have been subjected to courses of treatment not only useless, but painful and injurious, while they have also been rendered very anxious by not finding the 'tumor' disappear. Besides various other kinds of 'active treatment' submitted to, one patient came under Rayer's care, with the abdomen, especially the right flank, covered with leech-bites, and another had a moxa applied. Patients suffering from this affection should avoid long-continued standing, or much exercise, especially of a severe character, such as running or jumping, riding on horseback, or travelling over rough roads. Straining at stool should also be prevented as much as possible; the bowels should be regulated, and any obvious indication for the improvement of the general health should be followed out. In two or three of the cases I have seen the patients have been somewhat anæmic, and a course of steel medicines has appeared not only to have improved the general condition, but to have aided in relieving the dragging pains of which they have complained. Warm baths often give great

temporary, if not permanent relief, and a large belladonna plaster spread on leather has proved useful; but this might, perhaps, be partly due to the support it yielded. But the greatest and most efficient relief is obtained from the use of an elastic abdominal support, provided this be made so as to fit thoroughly well; if not, it sometimes rather aggravates than relieves the pain; and one difficulty lies in preventing its slipping too high up on the abdomen, when it acts somewhat like a belt round the waist, and may even tend to detrude the kidney downwards. Dr. Gueneau de Mussy has informed me that he ordered the lady who was under his care with this affection to have the bowels well opened every evening, and then in the morning *before rising* (while the kidney, therefore, is in its most normal position) to slip over the lower extremities, and so move it upwards till it encircled the abdomen, an elastic circular bandage or support; applying underneath it, opposite the right antero-lumbar region, a hair pad. The lady soon became accustomed to the pressure, and is now almost free from pain, although she has resumed her former mode of living, taking considerable exercise, and mixing much in society. I think these suggestions as to the time and mode of applying the support, of much practical importance."

(F) CONCERNING THE CUTANEOUS SYSTEM.

ART. 66.—*Mucilage of Starch as an External Application in Acute Skin Diseases.*

By Dr. THOS. W. BELCHER.

(*Dublin Hospital Gazette*, April 1, 1856.)

Dr. Belcher relates several cases of smallpox, in which he used the mucilage of starch as an external application, with very satisfactory results. The entire surface of the body was sponged with tepid water at least once a day, and after this thick mucilage of starch was immediately laid on. There was no pitting, and the itching ceased as soon as the application was made.

ART. 67.—*Treatment of Herpes Circinatus, by the local application of Rottlera Tinctoria (Kameela).* By Dr. WM. MOORE.

(*Dublin Hospital Gazette*, Nov. 15, 1857.)

Kameela is used by the natives of India, not only as an anthelmintic, but also as an application for scabies and other skin diseases, and several Europeans have borne their testimony as to its efficacy in both these respects. Dr. Moore's cases show that it may be a valuable remedy in ringworm.

CASE 1.—The first case in which I applied it locally, was that of Mary P—1, æt. 8 years, who was brought to the Institution for Diseases of Children; she had a well-marked patch of herpes circinatus on the neck, about the size of a sixpence; her head also presented several well-defined marks of herpes. On the 20th of July I first rubbed the eruption on the neck with the kameela, applied on moistened lint.

July 22d.—The eruption was scarcely perceptible; I reapplied the kameela, which completely removed it. Some days after, another patch appeared on the anterior part of the neck, and one on the left forearm, and in both cases one application of the kameela sufficed to remove them. The herpes capitis, which is quite cured, was treated with the unguent sodæ carb. (℞j to ℞j) and lotio sulphuret potass (℞j to ℞j); the alterative treatment being hydrag. c. cret. gr. j, pulv. rhei gr. iv, pulv. ipecac. gr. ½, at bedtime, and a teaspoonful of oleum jecoris aselli, three times daily. My stock of kameela at the time being somewhat circumscribed, prevented me applying it to the head in this case.

CASE 2.—In the month of July last, Michael R—n, a stout lad, æt. about 12 years, presented himself at the Institution for Diseases of Children; he had well-marked herpes capitis, about the size and shape of a half-crown-piece over the right parietal bone. I prescribed a purgative of calomel and pulv. jalap comp., to be repeated after the lapse of three or four days, and at

the same time ordered him a mixture containing small doses iodid. potassium. The local treatment was ungt. sodæ carb. (3j to 3i) and lotio sulphuret potass (3j to 0j). Under this treatment the improvement was manifest, but not so quick as I could have wished; accordingly, on the 3d of August, I applied the kameela on moistened lint, as in the previous case, and after the third application the patient did not return; and he afterwards told me that it had completed the cure. In this case all the merit is not due to the kameela, as the carbonate of soda and sulphuret of potash treatment had been in use some time, but the former application certainly expedited the complete removal of the eruption.

CASE 3.—G. P., æt. 4 years, a delicate girl, with glandular enlargement, was brought to the Institution, Pitt Street, Oct. 20th, on which day I applied the kameela to a circular patch of herpes on the left shoulder, which was about the size and shape of a florin, and at the same time prescribed hydrarg. c. cretâ gr. j; pulv. rhei gr. iv; and pulv. aromat. gr. ½, to be taken every second night.

Oct. 22d.—Eruption had almost disappeared; I reapplied the kameela.

26th.—Herpes quite gone.

CASE 4.—James P., æt. 2 years, a stout healthy boy, had a circular sore of herpes circinatus, on the top of the right shoulder, about the size of a shilling; on the 21st of October last I prescribed alterative powders of hydrarg. c. cretâ, rhei pulv., and pulv. aromat., at bedtime every second night, and applied the kameela to the eruption.

Oct. 22d.—Eruption much paler in the centre, edges still red; reapplied the kameela.

26th.—Mark of the eruption scarcely perceptible.

I think this powder may justly be considered a valuable addition to our local applications in herpes, and I have no doubt in other allied eruptions, of course coupled with alterative or tonic treatment, or both, as the case may be. As regards the anthelmintic properties of this agent, it is highly extolled by those who have given it a fair trial. The dose of the kameela, as an anthelmintic for an adult, is from 3j to 3ss of the powder, and of the alcoholic tincture, f3j. However, I shall reserve any further remarks on the vermifuge properties of this medicine till some future occasion, when I hope to bring it under the notice of the profession.

ART. 68.—*Note on Nest-cells,* in relation to Epithelial Cancer.*

By ANDREW CLARK, M. D., &c.

(*Lancet*, Jan. 9, 1858.)

"Although," says Dr. Clark, "nest-cells have been found in sebaceous cysts and myeloid tumors, an opinion still generally prevails, that the presence of these cells in any new growth is almost or quite characteristic of epithelial cancer.

"As there are in my pathological collection about twenty specimens which prove that this opinion must be modified or abandoned, and as there has recently prevailed in the eastern part of the metropolis a peculiar affection of the mucous membrane of the tongue in which nest-cells are found in considerable numbers, I have thought it desirable to make a short note upon the subject.

"1. I have occasionally found nest-cells in the diseased secretions of mucous membranes, particularly in those of the mouth, pharynx, tonsils, and œsophagus.

"2. In apparently healthy mucous membranes, furnished with several layers of epithelial cells, papillæ, and large follicles, nest-cells may commonly be found on some part of the surface: I have scarcely ever found them absent in new growths occupying the same localities.

"3. I have found nest-cells in common warty tumors of the skin, in cutaneous cysts, in chronic enlargement of the tonsils and prostate, in cholesteato-

* Synon.: Laminated epithelial capsules, epidermic globes, compound epithelial cells, &c. &c.

matous and myeloid tumors, in small tumors of the choroid plexus, in polypi, in the thick white integument round old ulcers, and in the various regions associated with other growths.

"4. In a kind of diphtheritic affection of the tongue recently and still to a limited extent prevailing in the east end of London, and in the London hospitals, I have found nest-cells in considerable numbers. This affection becomes first apparent in the form of white cloudy patches irregularly scattered over the tongue. These grow opaque, thick, and soft, and are removed, leaving a bright-red shallow erosion with very thick white elevated margins. A portion of the white patch just before its discharge, or a little of the thickened margin carefully transferred to the field of the microscope, with as little manipulation and compression as possible, will usually exhibit nest-cells analogous to those present in epithelial cancer.

"5. It would be out of place at present, and in the pages of a practical journal, to discuss the mode of origin of these nest-cells; but I think it worthy of observation that they are found in intimate connection with follicles and papillæ;* and that sections of both, when hypertrophied, are frequently mistaken for the cells themselves.

"It appears probable, from these facts, that the presence of nest-cells, even in considerable numbers, cannot be considered characteristic of epithelial cancer. As, moreover, the common epithelial cells in the advanced stage of the diphtheritic deposit above described, exhibit changes in their form and in their nuclei closely analogous to those observed in epithelial cancer, it is obvious that we must seek in wider conditions than those of structure only for a true definition of this growth."

* This is not intended to invalidate the explanation of Rokitanaky; for nest-cells are produced where neither follicles nor papillæ exist, though in fewer numbers.

PART II.—SURGERY.

SECT. I.—GENERAL QUESTIONS IN SURGERY.

(A) CONCERNING INFLAMMATION.

ART. 69.—*A Form of Acute Inflammation of Lymphatic Glands.* By Mr. PAGET, F. R. S., Assist.-Surg. to St. Bartholomew's Hospital.

(*Medical Times and Gazette*, Jan. 2, 1858.)

THE following remarks are from certain notes of practice among the out-patients of the hospital:—

"A form of acute inflammation of lymphatic glands often occurs, in which all the glands of a cluster appear to coalesce in one swelling, involving both themselves and the tissues between and about them, and accompanied with uniform induration, heat, and pain. The local cause of the disease is seldom evident; it is more frequent in those who are enfeebled by previous illness, or by defective food; its most usual seat is in the glands below the angle and base of the jaw, or in those behind and beneath the upper part of the mastoid muscle. In the former situation, the glands swell out to the level of the jaw, or beyond it, and may feel as if adherent to it; in the latter, being bound down by the tough fascia, they are less prominent; but, in both places, they make swellings of remarkable hardness, with a nearly uniform flattish presenting surface. The integuments over them are usually somewhat cedematous, but not reddened in proportion to the severity of the deeper inflammation.

"In the progress of this disease, which is usually accompanied by sharp inflammatory fever, it is common to find one or two small suppurations, as if one gland in the cluster had suppurated, while the rest remained swollen and hard. The finger passing over the diseased part sinks in as it passes on some small yielding spot; there is no distinct fluctuation, but a circumscribed softness.

"It will be found, I believe, an excellent rule to puncture this soft place as soon as ever it is detected. Usually, after such an opening, the pain is quickly relieved, and the rest of the swelling gradually subsides, without any extension of the suppuration. The opening may be small (half an inch or less long), but may need to be rather deep. All that seems necessary is the discharge of even a few drops of pus, and then leaving the part quiet, with warm moist applications over it. If such an opening be not made in due time, extensive suppuration is nearly sure to ensue, and greatly increase the duration and mischief of the disease.

"The rest of the treatment of such cases must usually consist in giving bark, warm purgatives (if any), good food, and in applying warm poultices or water-dressing, and fomentations to the inflamed part, both before and after the puncture."

(B) CONCERNING TUMORS.

ART. 70.—*On the Painless Extirpation of Cancerous Growths.*
By Dr. JAMES ARNOTT.

(*Medical Times and Gazette*, Jan. 23, 1858.)

Dr. James Arnott's principal object in this paper is to show that cancerous growths may be extirpated by congelation without pain, and with much less

danger than usual; and he gives a case in which the plan was tried upon a patient in the Middlesex Hospital.

CASE.—On the 28th of November, at noon, Sarah H—, No. 1, Laffan Ward, had a circular portion of the right breast, three inches and a half in diameter, and inclosing a large occult cancerous tumor, congealed for two hours by a frigorific mixture, at a temperature ranging from 8 to 12 degrees below zero, Fahr. This mixture, which was frequently renewed, was confined to the part by a cup or broad flat ring of gutta-percha, having a short flexible tube, closed by a stop-cock, issuing from its lower border. Immediately after removing the mixture, nitric acid was applied to the skin, and after the acid a thin layer of chloride of zinc paste was placed on it, and allowed to remain until the next day. There was no expression of pain made during or after these proceedings; but being questioned on the subject, the patient stated that for about five minutes, while the congelation was being effected, there was a sensation of tingling like that produced by a mustard plaster. The uneasiness from this was not sufficient to interrupt her account of the origin and progress of the disease, which I had requested her to give just as the congealing process commenced. This tingling of short duration was the only disagreeable feeling experienced during the day. She took her usual dinner while the congelation continued, and slept well during the night. It is proper, however, to relate, that previously to the application of the strong frigorific mixture, I had taken pains to benumb the part very gradually; and after its removal another refrigerating mixture was applied for about eight hours over the chloride of zinc, but kept separate from it by a very thin intervening membrane.

By the middle of next day, a large white slough or eschar had been produced by the combined measures, of exactly the dimensions of the lower opening of the gutta percha vessel, which (from having been previously heated) had adhered firmly to the breast till midnight. For the purpose of ascertaining the extent of the disorganization, the slough was cut in the presence of the resident medical officers to the depth of an inch without causing the least sensation. No inflammation followed, nor did any redness appear at the margin of the slough till the third day, when its separation had probably commenced. Notwithstanding the continued action of the caustic (which was daily inserted in the manner practised by the French), the patient's general health remained undisturbed until she left the hospital. The lower part of the eschar separated on the 21st of December, and when I last saw her at her own residence on the 7th of January the cicatrization was nearly complete. As her appetite had remained good during the whole of this period, and she had been able to take exercise in the open air, her strength continued unreduced. There had been no occasion to have recourse to cold again for its anæsthetic effects, and the only medicine taken by her during her stay in the hospital was two laxative pills.

"I have not considered it necessary to describe minutely more than the first stage of the treatment; for, as my principal purpose was to show that the dreadful pain produced by caustic can be certainly prevented while its action is much promoted, and the hazardous use of the knife superseded by a comparatively safe measure, a report restricted to that part of the treatment in which the suffering has always been the most acute and the inflammation greatest, would have been sufficient. Whether it proceeded from the deep and lasting preliminary congelation, or from her not having been rendered morbidly sensitive by the very severe suffering that has usually ushered in the treatment by caustic, the patient hardly felt what could be termed pain during the whole period—except on one occasion, when a little of the chloride of zinc paste spread from the slough to the adjoining sound skin.

"The absence of all inflammation, excepting that slight degree which is necessary for the separation of the slough, is as remarkable a circumstance in the above case as the absence of pain, and, in respect to danger is, perhaps, still more important. I have on several occasions endeavored to draw the attention of surgeons to the important fact, that congelation judiciously employed often constitutes an unailing prevention of inflammation; but no evidence of this can be more satisfactory than that made by Dr. V. Pettigrew,

and reported in the 'Medical Times and Gazette' of the 5th of December, 1857. So completely is all injurious or excessive inflammation prevented by intense cold in incised wounds, that of ninety-three operations performed by him under it, and of which ninety were perfectly painless, only one did not heal by the first intention when this was desired.*

"Questions of considerable importance as respects the removal of growths by congelation and caustic are, whether one slough should be allowed to separate by the natural process before another is formed; whether a fresh slough should be made under a previous one; or, finally, whether the sloughs produced should be removed by some mechanical or chemical means, in order to give these combined measures ready access to the living parts beneath. Each of these plans may be the most appropriate to certain cases. The first is the most tedious, unless a very powerful and deeply operating combination of these agents be employed, and in that case there is danger of the destruction of texture extending too far. The making of incisions in the slough for the insertion of caustic has been practised for the last fifteen years by M. Girouard, a physician at Chartres, though it is uncertain whether Canquoin, the celebrated cancer-curer, did not precede him in the use of a similar method. The surgeons of the hospital at Chartres sometimes burn holes with cylinders of caustic potash and lime, into which they insert pieces of chloride of zinc paste; and, more lately, caustic has been inserted deep in the flesh, either by previously puncturing the part with a knife (the practice of M. Maisonneuve), or by injecting liquid caustic through a capillary tube.

"When perfected, the third plan will probably be the best. The slough formed by intense cold could be easily removed by bent scissors, and under congelation, without uneasiness. Still softer, and more easily removable, is the slough produced by alkaline caustics, and the objections to them hitherto may be obviated by using the gutta-percha cup in their application. They are thus prevented from spreading, and any hemorrhage produced by them can be immediately checked by chloride of zinc, or by extreme cold alone. The contrivance of the cup will also enable us to soften or dissolve the harder eschars formed by the mineral acids or metallic salts.

"The union of pressure with frigorific agents facilitates the extension of congelation, by arresting the circulation through the part. They may be combined in a variety of ways, such as by pressing on the part a metallic vessel filled with a frigorific mixture; dipping such a vessel into mercury, confined to the part by a gutta-percha cup; pressing a surface under the action of a frigorific, with a cylinder of wirework; compressing the air in a close cup, containing a refrigerating mixture, &c. These plans complicate the process, but under certain circumstances their adoption may be indispensable.

"The combination of disorganizing and benumbing cold with caustic renders it of less importance to terminate the process of extirpation speedily. The extreme sufferings of the patient under the usual caustic treatment have too often induced the surgeon to hasten the removal of tumors, at the risk of leaving some portion of the disease behind.

"It was my intention, after describing the mode of removing tumors by the combination of intense cold with caustic, to enter upon the question, whether congelation, sufficiently prolonged, might not alone answer the same purpose, and, on some occasions, more advantageously. In two cases at the Middlesex Hospital this method was adopted, and with results of a very satisfactory nature, the description of which, however, as this paper has already exceeded its proper limits, must be deferred to another occasion. I will only state that these trials showed that the destruction of cancerous growths can be effected in as well-defined a manner by intense cold alone, as by its combination with caustic, but that the part must be kept thoroughly congealed for several hours. Such slow destructive action, though an inconvenience as respects this particular use of

* It is very possible, however, by continuing the cold too long, to reduce the vital powers beyond the degree required for union by the first intention. This happened some time since, in two cases at Guy's Hospital, under the care of Mr. Birkett. From the congelation having been continued at least four times longer than was necessary, the wound healed slowly and by granulation.

intense cold, is a fact of immense value in reference to its employment for operations and other remedial purposes, inasmuch as the knowledge of it will dispel the fear of injury to the textures which has hitherto impeded these uses of it. It were unreasonable, however, to consider the difficulty and trouble of pursuing this treatment of cancer, as an objection to it. Difficulty, if surmountable, is no sufficient reason for rejecting a remedial measure, for which there is no substitute; and no conscientious practitioner will object to what is requisite for his patient's safety, or freedom from suffering, merely because it is troublesome. Besides other advantages, the far-pervading influence of congelation may be absolutely required to destroy the vitality of those germs of the disease that lurk in places which cannot safely be invaded either by the knife or caustic; for extreme cold, as I have explained at length in my work on 'Cancer,' will destroy the cells and granules constituting the essence of the disease, without injury to the structures enveloping them."

ART. 71.—*On the Transcurrent Application of the Actual Cautery in White Swelling.* By M. NOTTA.

(*Médecin-Chir. Revue*, April, 1858.)

Upon the propriety of employing the actual cautery in the treatment of white swelling, a procedure revived by Pouteau, Larrey, and Percy, great discrepancy of opinion prevails amongst the best Parisian practitioners. Thus while MM. Nélaton, Guersant, and Bonnet resort to the actual cautery and other repulsive remedies, MM. Malgaigne, Chassaignac and R. Marjolin entirely reject this means, and MM. Sédillot and Bouvier only cauterize the epidermis in the slightest possible degree. During the author's *internat* he had been struck with the fact that the only cures which took place were due to the actual or potential cautery; and since he has been surgeon to the hospital at Lieieux he has continued to derive advantage from this revulsive treatment, and especially the form of it known as transcurrent cauterization.

The disease may be considered under three stages. First, there is an inflammatory condition of one or more of the elements constituting the articulation, an inflammation that may be either simple or rheumatic, spontaneous or traumatic. The second stage is termed by Chassaignac the transition period of the disease; the white swelling is forming, and, under the influence of diathesis, the articular affection takes on a chronic form; the soft parts become engorged, and the ends of the bones enlarged, but there is as yet no articular displacement. In the third stage the white swelling is formed, and the softened ligaments have allowed of displacement of the surfaces, which have also become eroded and crepitant. Abscesses and sinuses form, and the general health completely gives way. Various degrees of this stage may be present, but the same treatment is applicable to all of these. For the treatment of the first stage all practitioners agree in prescribing antiphlogistics and repose; and it is still to the same measures we must have at first recourse in the second stage, conjoining with them the treatment appropriate for the diathesis itself. But if antiphlogistics do not soon arrest the progress of the disease, douches, iodine frictions, compression, &c., must be employed—a series of measures which, if sometimes of use, are too often inefficacious, and compel resort to be had to large flying blisters, covering the whole joint, and which, dressed with mercurial ointment, may require to be repeated from ten to fifteen times in succession. If these means fail, whether from want of due perseverance in their application or from their insufficiency, more powerful revulsives must be employed, principal among which is transcurrent cauterization, as devised by M. Bonnet and employed by M. Nélaton.

A hatchet-shaped iron is employed, having its edge blunt and its back very thick, so as to retain much caloric. Heated to whiteness, this is passed over the entire articulation, by tracing with it parallel lines which are from twenty to twenty-five millimetres distance from each other. The iron should be passed slowly three or four times in the same day, taking care not to lean too heavily, so that the skin may not be divided, while as much caloric penetrates as possible. Several irons should be in readiness, so that the operation may be performed as readily as possible. Chloroform should be first administered; or, if

the patient objects to this, a frigorific mixture should be employed, the iron, in this last case, requiring to be somewhat more weightily applied. When the application is finished, the joint becomes red, swollen, hot, and painful; and it is to be covered with compresses dipped in very cold water, and which, renewed every few minutes, are to be continued as long as the severe burning sensation continues. At the end of a period varying from five to twelve hours the pain is assuaged, and for the compresses may be substituted cold linseed poultices, which are to be changed every two or three hours during the first day, and three times a day subsequently. The eschars enlarge, and in from seven to twelve days become detached; and as the epidermis covering the portions of skin comprised between the rays often become raised, the whole surface of the joint, after the detachment of the eschars, is in a state of suppuration. The cataplasms can now no longer be borne, and must be exchanged for cerated dressings. The period required for cicatrization varies from two or three weeks to several months. With the local treatment should be conjoined an internal treatment by means of cod-liver oil, iron, iodine, &c., according to the exigencies of the case.

M. Notta gives the details of nine cases which have been thus treated under his care, all being undoubted examples of white swelling, of a duration varying from two months to several years. The duration of the treatment varied from four and a half months to nine months, and its results were the restoration of the movements of the limbs in two cases, and cure by ankylosis in seven.

(C) CONCERNING WOUNDS AND ULCERS.

ART. 72.—*Powdered Chlorate of Potash as an Application to Ulcers, &c.*

By MR. JONATHAN HUTCHINSON.

(*Lancet*, Dec. 26, 1857.)

The following paper is from the Clinical Records of the "*Lancet*":—

"For some time past, at the Metropolitan Free Hospital, Mr. Hutchinson has employed the powdered chlorate of potash as an application to cachectic ulcers. In most cases it appears to exert a very beneficial influence, speedily inducing cicatrization; and it is very convenient of use. The cases in which it has best suited have been some of ulcers of the leg, open buboes, simple sores on the skin of the penis, and cracked nipples. In the latter it answers admirably. The salt should be powdered very fine, and dusted into the sore with the finger. It produces sharp smarting for a short time, but the pain soon subsides. In most cases suitable for its use it is also desirable to prescribe its internal administration; but with a view to making the experiments more conclusive, in the cases upon which Mr. Hutchinson founded his opinion of its efficacy no other treatment was adopted."

(D) CONCERNING FRACTURES AND DISLOCATIONS.

ART. 73.—*On Resection in Compound Dislocation.* By PROFESSOR HAMILTON.

(*American Journal of Medical Science*, 1853.)

In this paper, Professor Hamilton, of Buffalo, relates an interesting case of compound dislocation of the tibia inwards, together with fracture of the fibula, and in which a very useful limb followed resection of the lower end of the tibia. He enters into the question of treatment at some length. As compared with simple dislocation, the accident is of very rare occurrence; for of 94 instances of dislocation reported by Norris, only two were compound, and both these were dislocations of the thumb. Among 166 dislocations recorded formerly by Dr. Hamilton himself, there were only eight examples of compound. Of these, four were dislocations of the tibia inwards at the ankle-joint; one was a partial (pathological) dislocation forwards of the same joint; one was a luxation of the astragalus; one a luxation of the humerus into the axilla; and one a forward luxation of the radius and ulna at the wrist-joint. Compound dislocation is a much more dangerous accident than compound fracture, and Dr. Hamilton does not think A. Cooper succeeded in assigning sufficient cause for the difference. He believes himself that it is chiefly to be found in the fact

that dislocations are usually reduced and maintained in place by apparatus, while compound fractures are not in general reduced, and, if they are, cannot be maintained in position. It is to the stretching and strain of the muscles, tendons, and other soft tissues, during and subsequent to reduction, that the mischief is chiefly due.

Dr. Hamilton passes in review the various other means of treating the accident, viz., leaving the part unreduced, amputation, tenotomy, and resection, and gives the entire preference to this last, as being that which most conduces to the security of life and the preservation of a useful limb. As to the first points: "If we consider the life of the patient only, the arguments and the testimony seem to favor resection in a great majority of cases of compound dislocation occurring in large joints, and in a considerable number of cases of similar accidents in the smaller joints. It is certainly more safe than reduction without resection or non-reduction, and it is probably quite as safe as tenotomy or amputation." As to the amount of maiming or mutilation, the question lies between reduction without and reduction with resection. 1. In either case, the inflammation consequent upon the injury may be violent, and the recovery tedious; but the amount of resulting maiming must much depend upon the duration and intensity of the inflammation, and upon this point testimony is in favor of resection. "It will be observed, that not only is the danger of maiming rendered more considerable by reduction without resection, because the inflammation is so much more likely to extend to the tendons and muscles, causing them to adhere to each other, and to become subsequently atrophied, a condition from which they often never completely recover, but also because the ligaments and capsules of the joints, with the synovial surfaces, are in consequence encroached upon, and the freedom of motion is ever afterwards greatly restricted, if not completely lost. This marked impairment of the functions of the joint does not always happen, but it cannot be denied that it does generally. How is it, on the other hand, with these joints after resection? I have thus far heard of no cases in which complete ankylosis resulted; but in all considerable freedom of motion has returned, and in some the restoration in this respect has been nearly or quite as complete as before the accident." 2. The limb can be retained in place far more easily after resection than when this is not performed. 3. The amount of shortening after resection need not exceed three-quarters of an inch, and is often not more than half an inch—an amount of shortening that does not necessarily produce a halt, and the existence of which may not be known to the patient.

ART. 74.—On Bending and Partial Fractures of the Long Bones.

By Professor HAMILTON.

(*New York Journal of Medicine*, Nov., 1857.)

This paper is founded upon certain experiments performed by Professor Hamilton upon the legs of chickens, with references to cases that have occurred in his practice.

1. *Bending of the long bones.*—This is considered *first* in relation to the *immediate and spontaneous return of the bone to its original form*. The possibility of the occurrence is amply demonstrated by the experiments, in which the bones were bent to an angle of 25° , and immediately resumed the straight position; dissection, made a few days afterwards, exhibiting no traces of injury having been done to the bone. The author, therefore, infers the possibility of this occurrence taking place in the long bones of an infant. *Secondly*, with the exception of some few cases, in which while one of the bones of the forearm has been broken and the other only bent, Dr. Hamilton is not aware of any instances of *permanent bending* of the long bones. None of the cases so reported by authors have been verified by dissection, and he believes, with Gibson, that they are really examples of partial fracture. None of his experiments furnished any such results. Of course, no one denies that permanent indentation of the flat bones may take place.

2. *Partial fractures.*—These are considered under the same divisions: *First*, with *immediate restoration of the bone to its original form*. Although the existence of this form seems to have been occasionally recognized, it has not excited

any special attention. The few cases that have been met with in Professor Hamilton's practice have occurred in the clavicle. Of 72 fractures of this bone, 17 were partial; and of these, 4 were immediately followed by spontaneous restoration of form. Of 5 partial fractures produced in chickens, it was observed in 1. In the cases of fracture of the clavicle, the force has operated indirectly on the bone from the shoulder. A hard node-like swelling is observed at about the middle of the clavicle, unaccompanied by movement or crepitus, with the skin only slightly or not at all tender, and the axis of the bone being unchanged in direction. The *second* form, *without* immediate and spontaneous restoration of form, comprises the great bulk of cases of partial fracture. It probably differs from the other variety in the extent of the bony lesion, and in the peculiar form and degree of denticulation at the seat of fracture preventing the restoration of the form of the bone. The author has observed it in 13 or 72 cases of fracture of the clavicle, and in 12 of 188 cases of fracture of the radius and ulna. He has met with it in no other bones, although other authors have described it occurring in other long bones. He describes the appearances on dissection of the legs of some chickens which had been partially fractured a few days. Prior to dissection the limb still seemed bent, but this was found to arise from the subcutaneous effusion of lymph on the side which had been broken. Beneath the periosteum, too, there was a loose, thin, honeycomb deposit of ensheathing callus, which surrounded the bone in three-fourths of its circumference, being wanting exactly along the line of fracture, the seat of which was thus indicated by an oblique groove. Dissections in the human subject have also been made by Glaser, Camper, Bonn, and Campagnac. The diagnosis is not difficult, the distortion indicating fracture, while the absence of crepitus and mobility, and the mode of production, points to its partial character. No great anxiety need be entertained if the bone cannot be completely straightened, the natural form usually being restored after the lapse of a few weeks or months. "The gradual restoration of these bones is due to the same circumstance which produces at other times an immediate restoration—viz., the elasticity of the unbroken fibres; but which elasticity, in this latter instance, is, for a time, effectually resisted by the bracing of the broken fibres. At length, however, in consequence of the gradual absorption of the broken ends, this resistance is removed, and the bone becomes straight. If this absorption does not take place, and the fibres continue pressed forcibly against each other, as in the case described by Campagnac, the bone remains permanently bent."

3. *Fissures*.—In this section the author relates an interesting example of fissure occurring in the scapula, and refers to the fissures of various bones, as described by other authors; but this part of his essay does not call for further notice.

(E) CONCERNING OPERATIONS.

ART. 75.—*The After-treatment of Surgical Operations.* By Dr. BROADBENT.

(*Liverpool Med-Chir. Journal*, July, 1857.)

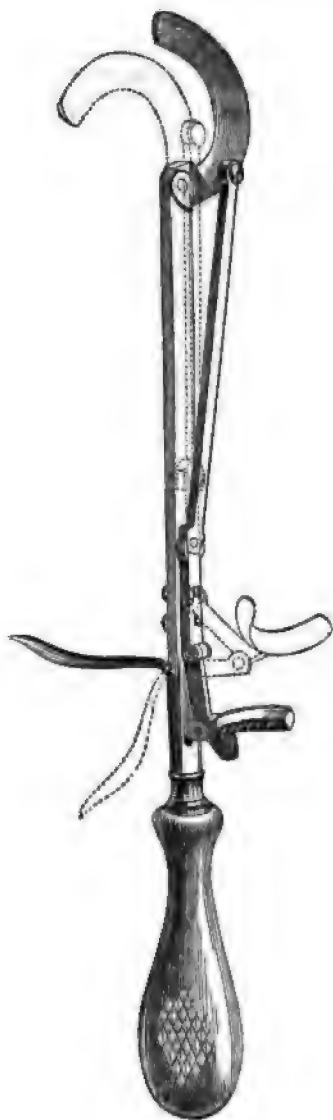
In a paper read before the Liverpool Medical and Chirurgical Society, Dr. Broadbent states his belief, that one most common obstacle to the union by the first intention, is the occurrence of hemorrhage, one or two hours after the operation; not to such an extent as to require the removal of the dressings, but sufficiently to form a coagulum of such a size as to seriously interfere with the union of the wound—acting, in fact, as a foreign body. The cause of this appeared to be, that in amputations, &c., when the surfaces were brought together immediately after the completion of the operation, the vessels were tied while the patient was still suffering from the shock of the operation, or it might be, was somewhat depressed by the after-effect of chloroform, whilst the more minute vessels were prevented from oozing by their exposure to the air, and that when reaction took place, the hemorrhage came on. The author thought that those cases in which this occurred to such an extent as to necessitate the reopening of the wound, usually terminate more favorably than others. He therefore advocated the plan of postponing the dressing until all oozing had ceased, and the cut surfaces had glazed over. The unnecessary removal of dressings, he believed to be another frequent cause of non-union. He thought

that the sutures having been removed, the bandages, &c., should remain untouched till the third or fourth day, and should then be carefully cut off. The inability of the patient to maintain the required position, acted in the same way, and to obviate this, it was suggested that the patient should, before the operation, be habituated to the position in which he would have to lie after it. In the maintenance of the position of the parts, by means of pressure, the author believed that small air-cushions might be advantageously used, instead of pads of lint.

(F) CONCERNING INSTRUMENTS.

ART. 76.—*A New Polypsome.* By Messrs. BIGG and MILLIKIN.

(*Medical Times and Gazette*, Jan. 2, 1858.)



This instrument has been invented within the last few weeks for Dr. Lever, by Messrs. Bigg and Millikin, of St. Thomas' Street, Borough, and is intended to facilitate the operation of removing broad-based uterine polypi. The instrument, as may be seen from the engraving, consists of a semicircular blade cutting by its concave edge, which plays freely round a circular joint placed at the end of a steel stem or shaft $5\frac{1}{2}$ inches long, when worked by a trigger and thumb piece or crescent, which pushes a slide and lever acting on the blade, forward and back. When prepared for use, the lever is drawn back, the edge of the blade being then passed over the part which is to be excised; the operator may now make gentle traction by means of the handle, while by pulling the trigger he causes the blade to sweep forward with a cutting movement, for about $1\frac{1}{2}$ inch. The instrument now becomes a cutting hook, the cutting edge being in the whole length of its concavity. The operation may now be completed with this hook by simple traction, or, if the base be too broad for this to be done, the lever may be withdrawn with the thumb, and the first step of the operation repeated.

This ingenious contrivance gives the operator the advantage of exercising at will either the cutting motion of a knife, or what is technically termed "incision by traction;" an advantage which will, no doubt, be fully appreciated by those surgeons who are not at all acquainted with the difficulties met with in performing these operations.

There is a "hook," very similar in shape to that formed by the cutting-blade and shaft of Messrs. Bigg and Millikin's "Polypsome" when the lever is thrust forward, in the Museum of the Royal College of Surgeons. It is evidently of very ancient date, and is unnamed. It lies close to a box of amputating instruments which were taken from the French in Egypt; but it is simply a solid hook, intended only to cut by traction, like the elegant polypsome of Dr. Simpson.

(G) CONCERNING ANÆSTHETICS.

ART. 77.—*The Advantages of a proper Apparatus for Anæsthetic Inhalations.*

By M. DEVERGIE.

(Lancet, Feb. 27, 1858.)

The profession are not as yet quite agreed as to the best and least hazardous way of administering anæsthetic inhalations: some give the preference to the handkerchief or piece of lint, and others always use some apparatus more or less complicated. A solution of the problem has lately been attempted by M. Devergie in a paper read before the Academy of Medicine of Paris. The author says, in summing up: "Death during anæsthetic inhalations may take place by asphyxia, the lungs being insufficiently supplied with air; and for such an accident, the person administering the anæsthetic agent is to blame. Now, I conceive that we should use chloroform in such a manner as to prevent any error of this kind, both on account of the safety of the patient and our own responsibility. Hence I consider myself justified in recommending the use of apparatuses having well regulated and permanent orifices for the admission of atmospheric air."

The views of M. Devergie have been warmly discussed at the Academy of Medicine, where the frequency of death by asphyxia, and the great advantages attached to the use of apparatuses, were put in question. This discussion induced M. Ludger Lallemand, who has made numerous and important experiments on anæsthetic agents, to write a letter to the Academy, in which he defends the following propositions, the subjects of his experiments having been taken from several classes of vertebrated animals, from reptiles and from birds:—

"The action of chloroform is in a direct ratio with the activity of respiration and circulation. The rapidity and intensity of anæsthetic phenomena are also in a direct ratio with the quantity of chloroform administered within a given time, viz., with the degree of concentration of the inhaled vapors; but this rapidity and intensity are identical *quoad* their nature and mode of evolution.

"Chloroform, by an elective affinity, accumulates in the nervous centres, the excito-motor properties of which it suspends, as also the sensitive and motor power of the cerebro-spinal nerves. It has been found, by chemical analysis, that the brain and spinal marrow contain about ten times more chloroform than the blood and highly vascular organs (as, for instance, the liver), the analysis being made on equal weights.

"I have *always* seen, in chloroform inhalations, respiration stop before circulation; the action of the heart and arterial pulsations lasted from one to six minutes after the complete abolition of respiratory movements.

"*All* the animals which were left uninterfered with after the breathing had ceased died, although circulation still existed at the time the inhalations were stopped. Ten times out of twelve I succeeded in recalling life into dogs and rabbits by means of insufflation into the lungs practised with a bellows and tube, the latter being introduced into the trachea. This insufflation was each time begun after the cessation of the heart's contractions, and was carried on until respiration was re-established.

"Insufflation acts by artificially eliminating the chloroform, and by stimulating the excitability of the nervous system. The chloroform is thus very rapidly driven from the organism, and the pulmonary surface is the normal outlet for this elimination, in which latter the cutaneous surface is concerned in a very limited degree.

"Death can be explained neither by paralysis of the heart nor by asphyxia depending on an insufficient amount of air supplied to the lungs; for I have killed dogs, which presented the phenomena described above, by injecting the vapor of chloroform into the jugular vein. It should, however, be stated, that I found, on post-mortem examinations, venous congestion, as is observed after asphyxia; but this circumstance should be attributed to the persistence

of the heart's action, and to the diminished permeability of the lungs depending on arrested respiration, these two phenomena leading to the accumulation of blood on the right side of the heart.

"It seems to me that death is chiefly owing to the abolition of the functions of the nervous centres, which latter gradually lose their vital properties under the narcotic influence of the chloroform which accumulates in the cerebro-spinal substance.

"It appears to me indispensable, in surgical anæsthesia, to dilute the vapor of chloroform with a large, and, as far as practicable, regulated proportion of atmospheric air, because the intensity and rapidity of action of such vapor are in a direct ratio with its concentration."

It should be added that M. Ludger Lallemand, who is secretary to the Société Médicale d'Emulation, was assisted in his experiments by a committee of the society.

SECT. II.—SPECIAL QUESTIONS IN SURGERY.

(A) CONCERNING THE HEAD AND NECK.

ART. 78.—*Sequel to a case in which the skull was trephined for rupture of the meningeal artery fifteen years ago.* By Mr. COCK, Surgeon to Guy's Hospital.

(*Guy's Hospital Reports*, Third Series, vol. iii. 1857.)

This remarkable case, of which we have here the end, is fully related in the 7th volume of the first series of the *Guy's Hospital Reports*, but the principal facts are recapitulated in the present account.

CASE.—John P—, æt. 46, a painter in the employ of Messrs. Maudslay and Co., was admitted into the hospital on September 2d, 1841. While at work he fell from a height of about seventeen feet upon a piece of iron which was lying on the ground below. He was stunned by the fall, but was recovering from the shock at the time he reached the hospital. A large scalp wound extended from the middle of the forehead along the vertex of the skull, and terminated a little to the left of the occipital tuberosity, and a flap was detached, so as to expose about the upper third of the left parietal bone; but no fracture could be detected; he had lost much blood. He remained conscious, and was so eleven hours after the injury, when he was able to get out of bed; four hours after this, he was found by the dresser in a state of perfect unconsciousness, with stertorous breathing and contracted insensible pupils. He continued to get worse and worse, and the case appeared nearly hopeless, when, judging from the nature of the accident and the symptoms that it was one of compression from hemorrhage, I determined to trephine. I was guided in my choice of locality for the operation by the fact, that on pinching the left arm and leg they were freely and readily retracted, while not the slightest motion could be excited in either extremity of the right side. A large piece of bone was consequently removed, above and behind the anterior inferior angle of the left parietal bone; a gush of blood immediately took place, and a portion of a large coagulum which existed between the dura matter and skull was removed. No fracture could be discovered. The deep stertor of the breathing almost immediately ceased, and on the following day the man moved his right arm and leg freely, and recognized his wife when she came to see him. He after this continued to progress favorably, the only drawbacks to his speedy recovery being some suppuration and exfoliation of bone.

He shortly resumed his work, and continued in full employment and in excellent health for thirteen years. I have had frequent opportunities of seeing the patient after he left the hospital, and the following memoranda, extracted from my note-book, will serve to continue the case, as recorded in the volume of "*Guy's Hospital Reports*" above mentioned, up to the period of the man's death.

May 16th, 1842.—Removed a portion of bone which had exfoliated from the margin of the trephine aperture. Is in perfect health, but says he has occa-

sional pain about the opposite ear, and stiffness of the muscles below the mastoid bone. Insists that his mental and sexual powers are more vigorous than previous to the accident. Thinks it has "cleared his head."

June 12th, 1842.—Quite well; the exuberant granulations indicate a further portion of exfoliating bone.

January 31st, 1843.—Extracted a large portion of dead bone, about an inch and a half square, including a third of the circumference of the trephine hole. It was the entire thickness of the skull; the under surface unchanged, and marked by the dura-matral vessels.

March 12th, 1843.—Removed two small portions of bone. The wound filling up. A few minute fragments of bone have come away during the last few months.

November 5th, 1843.—The wound cicatrized, with a very thin pellicle of skin; the cicatrix pulsates. His health continues exceedingly good, and he is capable of undergoing great fatigue and exertion.

May 12th, 1849.—I have had frequent opportunities of seeing him during the last few years. He has continued in perfect health, following his employment, going up ladders, &c. He now informs me that a month ago he had a slight "fit," and that yesterday he had three fits, each lasting only a few minutes; that during the fits the right side of the face worked, and that the right hand was firmly closed. The right leg appears to have been but little, if at all affected. He was purged, and cupped at nuchæ, with great relief.

August 26th, 1849.—Had a similar attack a few days ago; otherwise in perfect health. Was again cupped.

October 14th, 1849.—Has had epileptic fits this week, affecting the right side. Was dry cupped.

During the next few years he continued to be the subject of occasional epileptic fits at irregular intervals, but still continued his employment, although the attacks became gradually more frequent and more severe in their character. During this period he was accustomed to seek relief from dry cupping.

The last memoranda of this case are from the notes of Dr. Gull, under whose care he was admitted into Guy's in February, 1855.

He is therein stated to be suffering from partial hemiplegia of the opposite side of the body to that of the injury; the face included in the paralysis, and the speech somewhat affected; also that he has some slight mental confusion. The patient then said that he had of late suffered from epileptic attacks, the fits being at five weeks' to three months' interval, and characterized by much irritability before the seizure, and almost complete unconsciousness for some hours afterwards. He never had any paralysis until after the last attack, which was six months before his admission into the hospital.

On August 30th, 1856, he was seized with an apoplectic fit, and shortly died. A post-mortem examination was made at his house on the following day, by Dr. Wilks, who adds the accompanying report:—

The body was that of a stout, strong, healthy-looking man. A scar was seen running from the left side of the forehead to the vertex, but the site of the operation was not observable until a careful search had been made, as the part was covered with hair, and was continuous with the surrounding scalp; it could, however, be accurately defined by the finger, which, by being passed over it, could detect the extent of the vacuity in the bone, the hard boundaries which surrounded it, and the soft, elastic, and easily comprehensible membrane by which it was covered. In order to remove the calvaria, it was necessary to leave the portion of scalp which closed the opening on the outside of the bone, and the dura mater, which closed it within, so firmly had these membranes become incorporated. Upon cutting through the portion of brain immediately beneath, and which was adherent by its serous covering to the dura mater, a large quantity of semi-coagulated blood fell out, and presently three or four ounces more issued from the ventricles. The latter, which were full of blood, communicated with the softened brain-structure at this part, and thus the section caused the whole of their contents to escape. This apoplexy, which was the immediate cause of death, by infiltrating all the structures in the neighborhood of the injury, unfortunately prevented a full knowledge of the exact con-

dition of the parts prior to its occurrence. The principal source of the hemorrhage had been, probably, in the left corpus striatum or thalamus opticus, for at the right side these bodies were quite healthy, whereas on the left they were reduced to a pulp by the blood which was effused within them; the middle lobe of the hemisphere external to this was in a like condition, even so far as the neighborhood of the original seat of injury, and therefore, as before said, when the latter part was incised the clots at once made their way from the ventricles. This region of the brain, when the blood was washed away, was no doubt the subject of old disease; the structure was soft and of a light-brown color, and from so large a space being filled with blood, it was probable that a hollow space had been produced here by the *ramollissement*, that is, in the middle hemisphere, opposite to the hole in the skull, and reaching downwards to the base, and inwards towards the ventricles as far as the thalamus, whose surface also appeared to have been involved in the same chronic degenerative process. It appeared probable, then, that a softening had been going on for some months in the middle hemisphere of the brain, involving the contiguous surfaces of the corpus striatum and thalamus, and that at last a rupture of a vessel had taken place, infiltrating all these diseased structures as well as the ventricles.

The softening which favored the final hemorrhage was no doubt due to the state of the bloodvessels, which were found extremely diseased throughout the brain; the patient remaining so many years in good health sufficiently proves that the cause of the softening was to be found in them rather than in the original injury. Why this part of the brain was the principal seat of the impaired nutrition need occasion no surprise, since it is well known that injured parts, from the altered circulation or other causes, do often remain permanently weak. A disturbance in the circulation, or an imperfect supply of blood to the brain, might very readily be conceived to have set up a decay in this part rather than in any other.

As regarded the original wound it was not replaced by the growth of any new bone, but the trephine opening was filled by a tough membrane composed of the integument on one side and the dura mater on the other. These were firmly blended together, and formed a sufficiently strong protection to the brain; they were strongly united to the edges of the opening; the latter being rounded, with smooth edges, and was a little more than an inch in diameter. At its upper part there were two deep depressions, whence, probably, the diseased bone had proceeded, and there was evidence of a considerable osteitis having occurred all around the site of the trephining, particularly at its front part. Here over the left protuberance of the frontal, the bone was more than twice as thick as the corresponding part of the opposite side. For about two inches around the opening, the dura mater was closely adherent; and upon removing it, the inner surface of the skull was seen to be covered with a number of bony points or granulations. Immediately in front of the trephine hole there was a depression in the bone, which extended upwards and downwards for a length of three inches. It was caused by the ridge of new bone immediately in front of it, and might, with some possibility, have been the site of a fracture which took place at the time of the injury; from the great change, however, in the structure of the bone, it was impossible to prove this satisfactorily.

ART. 79.—On the Formation of Artificial Pupil by the Galvanic Cautery. By M. TAVIGNOT.

(*Mon. des Hôp.*, No. 119, 1857; and *Med. Times and Gazette*, Jan. 16, 1858.)

M. Tavignot, after enumerating various circumstances which may render the results of the ordinary operation for artificial pupil unsatisfactory, states that he has been for some time considering the applicability of the galvanic cautery for this operation, and has succeeded in employing it. Its chief advantages are, that the new pupil may by it be established instantly, and without hemorrhage, and that its dimensions and shape can be exactly determined. Being a more simple manœuvre than the tearing through the iris, it is less likely to be followed by inflammatory consequences. Moreover, the aperture can as easily be

made in the cases in which false membranes line the posterior surface of the iris, or obstruct its central portion. Thus far he only deems this procedure applicable to subjects who have already undergone the operation for cataract; as in the case of the lens being present its opacity would be induced during the application of the caustic. M. Taignot prefers Bunsen's pile; and having made an incision at the external circumference of the cornea, he passes in the caustic-rod, directing its platinum ring to the point he wishes to influence, taking care not to cauterize the posterior surface of the cornea, nor the edges of the wound.

ART. 80.—*Dislocation of the Crystalline Lens.* By MR. WHITE COOPER.

(*Medical Times and Gazette*, Jan. 2 and 9, 1858.)

In these papers Mr. White Cooper relates some interesting cases of this accident, and lays down the following rules for the treatment of these cases:—

"When an opaque lens lies in the anterior chamber, it can only be regarded in the light of a foreign body, and the safest course will be to extract it. Instances have been mentioned where little irritation has been caused, but these are exceptional, and it must be borne in mind that inflammation may be lighted up at any moment: the vibrations of a railway, the shaking of horse-exercises, or a multitude of other circumstances, may give rise to it. According to my experience the operation of extraction in such cases is attended with little risk, and by its performance the eye is relieved from a great and constantly impending peril. Undoubtedly the consent of the patient may be withheld, and then we can only adopt palliative measures if inflammation exists, or precautionary measures if the patient has the good fortune to escape it. If the patient be very young—and Mr. Walton mentions a case of dislocated lens in an infant of three months old—absorption may take place without the necessity for an operation.

"In proceeding to extract opaque lenses, I give the preference to the lower section; this enables the lens to escape at once if free, or if adherent to the iris, the connection can be separated with facility. We should remember, when dealing with a spontaneously displaced lens (especially if the lens be osseous), that the vitreous humour is almost certainly fluid, and that therefore the gentlest handling will be necessary. If the hard lens is behind the iris and attached to it, the pupil will probably be so rigid as to make it exceedingly difficult for the lens to pass through; under these circumstances it is far better to slit the margin of the pupil with a pair of scissors, and so to enlarge it, than to endeavor to force the lens out; for the vitreous humor will escape, though the lens will not, and so the globe may be emptied to a serious extent.

"Though not an advocate for the use of chloroform in ordinary extractions, I consider it of the greatest value when dislocated and osseous lenses have to be removed. Adhesions may exist; the operation is then necessarily prolonged, and requires extreme care and delicacy in the performance. Without chloroform the eye becomes restless and irritable, retreating from every touch, while the lids spasmodically close. The anæsthetic, then, is a great boon to the operator, and a still greater to the patient, sparing much suffering while under the surgeon's hands, warding off secondary neuralgic pain and irritation, and thereby hastening convalescence."

ART. 81.—*Case of Vascular Tumor of the Orbit successfully treated by injection of Tunnin.* By MR. HAYNES WALTON, Surgeon to the Central London Ophthalmic Hospital, &c.

(*Proceedings of Royal Med. and Chir. Society*, Jan. 26, 1858.)

CASE.—A lady, æt. 20, was sent to Mr. Walton by Mr. Square, of Plymouth, in 1856, on account of a vascular growth in the left orbit. The eyeball was prominent, and turned slightly upwards and outwards, restricted in motion, and incapable of being directed inwards. The lower eyelid bulged, and was slightly discolored, especially towards the nose. By turning down the tarsal margin there was exposed a growth, having the appearance of a congeries of

veins attached to the eyeball, and which was evidently only a part of a larger mass. Pressure emptied it, the act producing pain, and redistension took place very slowly.

The chief subjective symptoms were, pain on the slightest exertion, and in extremes of temperature and during the catamenia; inability to lie down, in consequence of unpleasant sensations in the orbit and head; vision nearly extinct. The affection was congenital. Very soon after birth, slight swelling of the lower eyelid was discovered. At the age of 13, it attracted attention generally; and besides being larger, there was a bluish tint of the integuments. Reading or writing for some hours always caused temporary enlargement, and heightened the color.

Mr. Walton diagnosed the tumor to consist chiefly of dilated and tortuous veins, and came to the conclusion that it was limited to the anterior and inner part of the orbit, and did not pass posteriorly. He resolved to treat it by the method of injection, and sought for an agent which might be safely used. Some experiments with the perchloride of iron caused him to reject it as unsuitable, from the tendency of the free acid which it contains to produce sloughing, or at least severe local action—a result to be avoided in such a situation. Ultimately, he determined to employ tannic acid, as an agent not possessing caustic properties, and one readily producing coagulation of the blood. A strong solution of this substance was thrown in with a syringe. There was rapid cessation of the hemorrhage which followed the preliminary puncture, and the solidity of the tumor showed the extent of the coagulating action. Considerable swelling of the eyelid and chemosis of the conjunctiva ensued, accompanied with local pain and slight constitutional disturbance, but this was of short duration. A slight incision deemed necessary in the tumor was in a day or two followed by a dark-brown discharge. Later an abscess formed under the lower eyelid, and was evacuated by an external incision. The eyelid was long paralyzed, but ultimately the movement completely returned. The discharge from the tumor continued for many weeks, varying in quantity, and several times pain and local irritation preceded the escape of fibrinous clots; and twice a small cretaceous mass was discharged.

When the patient left town, just three months after the commencement of the treatment, there was no longer any secretion from the seat of the disease or the abscess, and all trace of the tumor had long disappeared. The eyeball had fallen back nearly to the natural plane, although all its movements were not perfect. It could be directed downwards and outwards naturally, but not turned fully inwards, nor could it be raised to more than half its proper extent.

ART. 82.—*On Cysts in the Orbit.* By MR. POLAND.

(*Ophthalmic Hospital Reports*, No. 1, Jan., 1858.)

The following remarks are the comments appended to a case of orbital cyst:—

"1. Cysts in the orbit are not such simple things as one might be disposed to call them. 'It is only a cyst in the orbit, and we will easily remove it for you,' may be the language of a surgeon to his patient. However, when he comes to reflect for a moment, he will find that the orbit, at the back part especially, is in close proximity to the brain and its membranes, and that the dura mater is in direct continuity with the orbital cavity; that these encysted tumors often extend as far back as that point, and some even pass through the optic foramen; and that injury or inflammation occurring to this cyst may by contiguity extend itself to that membrane, and onward to the brain, as seen in the present case. This untoward occurrence is by no means rare.

"2. The simple puncturing and laying open of the cyst is also not unattended with danger; in the first instance it may be followed by acute inflammation, which may extend to the cellular tissue of the orbit, and to the brain; or it may induce suppuration; or it may be followed by effusion of blood in its interior. Again, puncturing very seldom cures, as the sac rapidly secretes its peculiar contents.

"3. Complete excisions cannot always be accomplished; hence we must remove as much as is within reach, without detriment to the eye or its appendages. In performing the operation, we must have a free opening; and there is no reason why we may not do this by an incision through the integument, where there is difficulty in accomplishing our object through the conjunctiva; this, of course, only applies to tumors of large size."

ART. 83.—*On Protrusion of the Eye connected with Enlargement of the Thyroid Gland.* By Mr. POLAND.

(*Ophthalmic Hospital Reports*, No. 1, Jan., 1858.)

"Enlargement of the thyroid gland," says Mr. Poland, "does not always cause a protrusion of the eyes, as may be seen, at any time, among the several out-patients in the metropolitan hospitals; but, that it does so at times, cannot be disputed; and we can readily understand the cause. The enlarged gland may cause pressure on the jugular veins, and thus retard the flow of blood, which would produce cerebral congestion, were it not for the wise provision for the escape of blood from the cranial cavity. The ophthalmic vein is one of the most important ones; and should it have to perform this duty for a considerable length of time, it will necessarily become enlarged, and would, of course, tend to render the eyes prominent."

ART. 84.—*On the Treatment of Tinea Ciliaris.* By Mr. STREATFEILD.

(*Ophthalmic Hospital Reports*, No. 2, Jan., 1858.)

"In hospital practice," says Mr. Streatfeild, "the treatment of this disease is rather unsatisfactory. It is chronic, and of little inconvenience to the patients—the treatment is tedious, and they find the remedies difficult to be applied. To these neglected cases of long standing, the following methods are well suited: In the first place, the expedient 'fomentations to be used frequently to the eyes,' ensures the necessary cleanliness, and is easily employed by the patients. To remove the old incrustations of the wide ulceration about the roots of the lashes, at first, I employ a pair of forceps, that meet only at their extremities, which are broad and blunt—the lid is steadied and slightly everted with one finger, and with the forceps the scab is seized close to the edge of the lid, and with slight traction, without closing the forceps, it is altogether detached, without bleeding, and with, perhaps, less pain than by any other means. It should not then be drawn over the whole length of the lashes, at the risk of removing them with it; but, when detached, left, and the lashes cut off close to their roots, wherever the disease exists. To obviate the apprehensions of some patients, it is advisable, before using the scissors, to bring them into contact with the skin of the lid for an instant previously. The lid should then be slightly everted, wiped with soft rag, and the whole of the raw surface on the outer edge of the lids (avoiding the Meibomian orifices) touched with the solid nitrate of silver. The scabs cannot accumulate again when the lashes are kept short, secretions are readily removed, any application to the diseased surface is easily made, the risk of distorting or ultimately losing the lashes much diminished, and their future growth improved. The lashes are ready to fall out from the protracted ulceration at their roots, and (when they are not cut off), they are probably pulled out, and lippitude is the result;* or by the drying of secretions, and cicatrization of the ulcers about the roots of the lashes, they are forced into abnormal positions, and trichiasis is the consequence. But another very common cause of inverted or otherwise distorted lashes, after the disease, is, I believe, the forcible and ignorant use of the local applications prescribed. The methods above advocated will be found to facilitate the ordinary treatment, to save the lashes, and to expedite the cure. After the caustic I generally order some simple ointment to be applied, night and morning, to the edge of the lids, and the ulceration is generally found to be inclined to heal."

* The entire hair bulb is casually abstracted, when the scabs are removed; but usually it is left in the hair follicle, with a similar result, inasmuch as the cure of the disease obliterates the empty orifice.

ART. 85.—*On Discoloration of the Conjunctiva with Nitrate of Silver.* By Mr. STREATFEILD.

(*Ophthalmic Hospital Reports*, No. 2, Jan., 1858.)

This has always been an occasional result of the employment of the nitrate of silver externally, in cases in which (if it had been before expedient) its beneficial agency is lost to the patient. When a prescription is given incidentally, the time for which it might be used should be fixed; and, when ordered for an hospital out-patient, but a very small quantity of the solution, each time, should be given. By photographers various means are adopted of changing or removing the blackened nitrate of silver, and it is a reasonable inference, from the experience gained in photography, that the hyposulphite of soda would obliterate the staining of the conjunctiva from the same cause. The stain has been called "indelible" by authors, but that these cases are remediable is at any rate proved by the following instance: A man who came to the hospital had been using, for twelve months, a nitrate of silver solution, which he had applied daily to the right eye, for a speck in the cornea, for which it had been prescribed originally. The discoloration was considerable; not only the lower part of the eyeball, the caruncle, semilunar folds, and palpebral conjunctiva were deeply stained, but the cornea itself had acquired a slight tinge, sufficient to modify the blue-gray color of the iris, and to impart a decided tint to an incipient arcus senilis. The corneal opacity remained. Mr. Dixon first tried the effect of a solution of cyanide of potassium, beginning with five grains to the ounce, and, as this did not produce irritation, going on to double that strength. The solution was applied twice a day, by means of an "eye-glass," so as to ensure a prolonged contact with the conjunctiva. After several months, no improvement appeared to have taken place. Mr. Dixon then tried a solution of hyposulphite of soda (gr. x ad 3j), applied in a similar manner. The patient has been using the latter remedy for two months, and, even with the weak solution, the improvement has been considerable; the conjunctiva has, in part, become of a natural color, and the discoloration is altogether much reduced. The treatment is continued, with a proportion of the salt of double the strength of that originally ordered. It is probable that a still stronger solution of the hyposulphite of soda might be safely employed, for its use has hitherto appeared to cause no irritation.

ART. 86.—*On a very rare form of Destructive Inflammation of the Cornea requiring extirpation of both eyes.* By Mr. LAWRENCE, F.R.S., Surgeon to St. Bartholomew's Hospital.

(*Medical Times and Gazette*, May 13, 1858.)

In some clinical observations on the following case, Mr. Lawrence stated that this case, as far as his experience went, was unique; at least such had been the fact until within the last few weeks. About a fortnight ago he had seen, in consultation with Mr. Alexander, a lady somewhat past middle age, whose eye presented an exactly similar condition, and had, like those of the poor girl just removed from the theatre, been wholly lost by destructive inflammation of the cornea, unattended by apparent cause. In both cases the peculiar thrusting out of the globe had been observed, and in neither was there anything to account for it beyond the swollen condition of the cellular tissue of the orbit. In neither had there been any purulent discharge whatever from the conjunctiva, and in neither had suppuration taken place either in the globe or the orbit. The difference in the age and circumstances of the two patients made it evident that the disease did not depend on any special habits of life or particular period of life. In the girl's case, it was also remarkable that the second eye had been attacked so long after the first. She had meanwhile been fed up, had acquired a good appetite, and was in greatly improved health. Mr. Alexander had agreed with him that he had never before witnessed an example of similar disease.

CASE.—Ann Price, *æt.* 25, a domestic servant, was admitted on Jan. 2d. She

had been sent to St. Bartholomew's from the Fever Hospital, where she had been an inmate for two days only, having been discharged because her disease presented no features of specific fever. She was a thin, pale, very cachectic woman. Her left eye was very prominent, and the conjunctiva in a state of chemosis, much swollen and very florid. The cornea was opaque and yellow, like wash leather, and beginning to slough. There was no purulent or other discharge. She complained of a most severe frontal headache. The account she gave was, that her eye had been inflamed only about ten days, and that during this time she had suffered most severe pain in the temple. She had been out of health, she said, ever since the summer, when a severe diarrhoea had much reduced her. Her eyes had also, she thought both of them, been more prominent since that illness than formerly, and her friends had also remarked upon the same circumstance. She had, however, been able to remain at her place until the present attack in the eye, at the onset of which the febrile disturbance had been so peculiar that the case had, as observed above, been mistaken for one of fever, and she had consequently been sent to the Fever Hospital. There was nothing amiss with the right eye, excepting that it was noticed to be unduly prominent.

The destruction of the cornea in the left having rapidly become complete, and the eye being totally lost, Mr. Lawrence determined to remove the globe. This was done by the usual operation, about three weeks after her admission. At the time the eye was very prominent, and surrounded by swollen and everted mucous membrane. The iris and pupil were covered by layers of tough yellow lymph. During the operation nothing was observed to account for the extreme prominence of the globe; there was no abscess or tumor behind it. The globe on examination appeared to be healthy as regards all its structures excepting the destroyed cornea. No suppuration had occurred within it. Much relief to the frontal headache, etc., was obtained by the operation, but the conjunctiva still remained œdematous, and much swollen, so as to evert the lids somewhat.

About a week after the operation the right eye was attacked by disease exactly similar to that which had destroyed the left. The conjunctiva became swollen and dry, and the cornea dull. The latter was rapidly covered by a thick crust. On taking off this scab, a few days after its formation, the cornea was seen to be still perfect in form, though wholly opaque, and roughened and dry on its surface. It ultimately sloughed, and came away, exposing the whole iris.

Extirpation of this globe also having been decided on, the woman was again brought into the theatre on Saturday last (March 6). A scab of yellow lymph occupied the centre of the much protruded eye, concealing the iris, etc., and all around was a roll of red, dry, very tumid conjunctiva. After removal, it was found, as had been observed in the other, that the vitreous, retina, choroid, etc., were all apparently healthy, the disease being confined to the anterior parts.

ART. 87.—*On some points in the Pathology and Morbid Anatomy of Glaucoma.*
By Mr. HULKE.

(*Proceedings of the Royal Med. and Chir. Society, Jan. 1st, 1858.*)

The ophthalmoscopic examination of many cases of glaucoma, and the dissections of several eyes affected with this disease, have furnished the facts detailed in this paper. Two chief forms of glaucoma have been long recognized; they are the acute and chronic, but a large number of cases occupy an intermediate position. The symptoms of acute glaucoma have been often and well described, but ophthalmoscopic signs are less widely known. They are: a dilated state of the retinal veins, often tortuous and turgid with blood; small ecchymoses scattered over the surface of the retina; occasionally small blood-clots in the vitreous humor; pulsation in the arteria centralis retinae; and an excavated state of the optic papilla. These two last signs were, the author believes, first noticed by Graefe, who insists upon their being pathognomonic of this disease. Although in acute glaucoma the urgent symptoms often

in very suddenly, yet in a large number of cases the outbreak has been foreshadowed by a train of premonitory symptoms. These are: occasional dimness of sight, often towards evening, shooting pains in the eyeball, muscæ, and a gradual diminution of the field of vision. Graefe has drawn particular attention to this last point. The outbreak may be followed by a remission, only a temporary improvement, for fresh paroxysms will occur, and blindness inevitably result. In the advanced stages sclerotic staphylomata are apt to occur, mostly behind the insertions of the recti tendons. Chronic glaucoma differs from the acute chiefly by the insidiousness of its course, which is unmarked by those violent symptoms which characterize the outbreak of the acute form. It is quite as intractable as the acute form. The retinal veins are turgid, and the retina is sprinkled with hemorrhagic spots, just as in the acute form. Sometimes in the same person, one eye is attacked by acute, the other by chronic glaucoma. These facts favor the supposition that acute and chronic glaucoma are only different forms of the same disease. Graefe has called attention to a peculiar form of amaurosis, in which the optic papilla is excavated. This affection must be carefully distinguished from glaucoma, which may be done by observing that the globe is not tense, and the other signs of hyperæmia are also absent.

Morbid anatomy of glaucoma.—The small blood-spots which are sprinkled over the inner surface of the retina are small spots of capillary hemorrhage. This condition was first recognized in glaucoma, by actual dissection, by Mr. Bowman. The bleeding proceeds from capillaries in the inner layers of the retina, and the blood either spreads laterally amongst the elementary structures of the retina, or, bursting through the hyaloid membrane, it forms small clots in the vitreous humor. The retinal capillaries are irregularly dilated and studded with small fusiform and globular enlargements—little aneurismal pouches. These dilatations do not occur on the large vessels. The pouches and the vessels communicating with them are usually crammed full with blood-corpuscles. In the hemorrhagic spots the retinal tissues are infiltrated with blood-disks, which have escaped by the bursting of some of these little aneurismal pouches. Excepting the changes described above, the retinal capillaries have a healthy appearance, and do not present traces of fatty or atheromatous degeneration. The coats of the arteries are hypertrophied. The vitreous humor sometimes has a yellow tinge, which is derived from the coloring matter of the effused blood. It often contains blood-disks and delicate fibrinous webs; and sometimes also small blood-clots, which can be clearly seen with the unaided eye. The vitreous humor has a very remarkable degree of consistence, and does not quickly flow off when the eyeball is cut across. Viewed by transmitted light, the glaucomatous lens has a yellow tint like the vitreous humor, and which is probably acquired from the same source—viz., the coloring matter of the effused blood. The relations of the lens and the vitreous humor favor this supposition. In none of the dissections were any morbid changes found in the choroid, unless when staphylomata were present. Corresponding with the staphylomata, the choroid, retina, and sclerótica preserve their native relations to one another, and are not separated by any effusions. The choroidal pigment is irregularly distributed; the tissues seem opened out. The subsequent changes in the retina and choroid, in the advanced stages of the disease, have an atrophic character. The dilated retinal capillaries and their contents have been found dark and granular, in a state of fatty degeneration, and the contiguous parts of the retina participate in these changes. The symptoms, the ophthalmoscopic signs, and the structural changes which take place early in the disease, all point to a state of great vascular excitement in the retina, and a greatly increased internal pressure upon the walls of the globe. It is this pressure which causes the blindness in the early stage of the disease, and the fixed dilated pupil, for when the pressure is relieved by operation, sight and mobility of the pupil return.

ART. 88.—*New Operation for Artificial Pupil.* By MR. CRITCHETT.

(Medical Times and Gazette, May 3, 1858.)

"Mr. Critchett has recently adopted at the Moorsfield Ophthalmic Hospital, a mode of operation where it is wished to displace the pupil, which is, we believe novel. Instead of drawing out and snipping off a portion of iris, he draws it out and secures it by a fine ligature from slipping back. It may, perhaps, at the first mention, seem that the result must be nearly the same as if the scissors were used, since the portion included in the ligature will slough away. There is, however, another point in Mr. Critchett's proposal which indeed constitutes its main feature. It has long been an aim with ophthalmic surgeons to discover some mode of operating by which the natural pupil should be simply displaced to the elected position without laceration of its margin. This was the end sought to be obtained by the ingenious suggestion of a surgeon of Nantes, to remove a small portion of cornea near its circumference, and then allow the iris to bulge and become adherent to the cicatrix. This latter mode of operating has been frequently adopted of late by Mr. Bowman and other English surgeons, and we have seen some excellent pupils obtained by it. It is, of course, the substance of the iris near its circumference which bulges into the wound, not its pupillary edge. Now, Mr. Critchett aims to exactly imitate this process, with the advantages that no portion of the cornea is excised, and that the result is much more certain. Having made an incision close to the corneal edge sufficient to admit of Leur's forceps, the iris is seized just within the opening (that is, very near to its attached border), and is gently drawn out until enough is prolapsed to allow of the application of the ligature. The ligature prevents all chance of the return of the iris which might otherwise follow. Mr. Critchett has now performed it in four instances, and last Friday, Mr. Bowman also adopted it in a case under his care. It is, of course, best adapted for cases of leucoma, &c., where the iris itself is not diseased. If the pupil have strong adhesions, one or other of the numerous older methods would be better suited."

ART. 89.—*On the Operation of Iridectomy.* By MR. T. WHARTON JONES, F. R. S., and Dr. MACKENZIE.

(Medical Times and Gazette, April 3, 1858.)

This paper is a criticism on the operation of iridectomy, or excision of a piece of the iris, as recommended by Dr. Graefe, of Berlin, as a means of cure in various diseases of the eyes, especially chronic iritis, irido-choroiditis, and glaucoma. The writers are altogether at variance with Dr. Graefe. "Dr. Graefe's practice of iridectomy," they say, "appears to us so opposed to the plainest principles of surgery and common sense, and so little supported by its results, that we must confess our surprise at its having been so eagerly imported into this country. We have no doubt, however, that in a short time iridectomy as a means of treating glaucoma will be abandoned; while the attention of practitioners having been redirected to the effect of taking off the intraocular pressure which plainly exists—not, however, as the primary, but as one of the secondary phenomena in glaucoma—the practice will be revived of more frequently puncturing the cornea and sclerotica in this disease."

ART. 90.—*A Peculiar Disease of the Retina.* By Dr. BADER.

(Ophthalmic Hospital Report, No. 2, Jan., 1858.)

Dr. Bader's chief object is to show that the retina is the seat of a special form of disease, in which the other textures of the eye do not participate, except secondarily and remotely, and to separate it from the vague class, Amaurosis. I should propose to name it, "Softening of the Retina." Once familiar with the peculiar appearance of the optic nerve entrance, the disease can be recognized in its earliest stages, and is open to treatment. The objective symptoms are, when far advanced, well marked; but for the diagnosis, I believe the ap-

pearance of the optic nerve entrance to be sufficiently characteristic. The more advanced the disease, the more marked is the grayish-blue appearance, and the less is the supply of blood; and the more do the vessels give the impression of being bent over the edge of the optic nerve entrance. The pulsation not unfrequently seen in the vessels may be caused by the blood overcoming the resistance it finds at the bend.

Another feature, though not constant or peculiar to these cases, is the distinctness with which the insular arrangement of the hexagonal pigment is seen on the red choroidal field. It may be owing to a change of position of the rods, produced by the disease in the nerve-cell layer of the retina; the last of the above cases shows how complete the retinal transparency remains to the ophthalmoscope while the destructive changes are progressing in its substance.

Mr. Bowman, I believe, first discovered the change of position of the bluish-gray crescent in the optic nerve entrance, on movements of the eye. This symptom will be understood by considering the shadow thrown by a movable, concave, light reflecting surface.

The disease, when far advanced, causes opacity of the lens, and similar changes consequent on pressure in the cornea and sclerotic, and in the ciliary circulation. If we add pain, sudden increase of hardness of the globe, and other active inflammatory symptoms to the above sketches of the exterior of the eye, then we have what is called "Acute Glaucoma."

The present surgical treatment of these cases, as employed by Mr. Critchett and Mr. Bowman, tends to decide which cases will be improved by excision of part of the iris. Acute cases have decidedly been improved, not so chronic ones.

The ophthalmoscope recognizes the above disease in its earliest stage. Will the surgical treatment be more successful when applied early? or is it only serviceable when inflammatory symptoms join the chronic state? or is acute glaucoma a different disease altogether? The marked difference of success of the surgical treatment, as applied to apparently the same class of diseases, leads to the above questions. Cases similar to the above, and accessible to the ophthalmoscope, will, I believe, be the most favorable to allow of accurate and conclusive experiments.

Dr. Bader relates three cases, of which the following is one:—

Case.—History.—October 9th, 1857. W. F.—, æt. 34, gardener, observed, nine years ago, on stooping, a dimness appear before both eyes. The dimness increasing, he underwent various medical treatment, comprising blistering, cupping, leeching, mercury, and tonics, during which, at the end of twelve months, vision was reduced to mere perception of light; this state continued up to April 22d, 1857, when the patient came under the care of Mr. Critchett; he then had perception of light, most in the left eye, but not sufficient to enable him to find his way about. Periodically he saw more light, especially in the mornings and evenings. Before and during this eye-disease the patient enjoyed good general health, and at no period of his life had had either inflammation or pain in the eyes or in the head.

Present symptoms.—Both eyes. October 9th, 1857. Slight external strabismus; the globes a little harder than normal, the sclerotics of a dirty grayish-white color, large veins emerging from the ciliary region, general slight haziness of the cornea, the iris of a clear brown color. Both pupils irregularly dilated and immovable, their area slightly misty. April 22d, 1857. The cornea transparent and the area of the pupils clear.

Ophthalmoscopic examination.—Both eyes. April 20th, 1857. The media transparent, the choroids of a deep red, with many brown pigment-islands, the entrance of the optic nerve too well defined, with a dotted bluish-gray watery appearance of its surface, most marked at its outer edge. At the upper part of the periphery of the left optic nerve some irregularly defined white patches dotted with pigment. Three very small vessels pass through the centre of the right optic nerve, and disappear at its periphery. Four veins returning from the retina, of normal diameter and color, pass out of the eye close to the periphery of the entrance of the optic nerve. Through the left optic nerve four thin vessels pass and spread over the retina, and two large veins terminate

abruptly, as in the right eye. October 9th, 1857. Right eye. The haziness of cornea and lens prevents the light from entering the depth of the eye freely. On a dimly red field the dirty bluish-gray well-defined surface of the entrance of the optic nerve is seen, with two thin vessels passing through its centre, and disappearing at its periphery. Left eye. The cornea and lens slightly misty, the state of the parts behind, as on the 22d of April. A good sketch of the entrance of the optic nerve, and the neighboring parts, may be seen at the hospital.

Treatment.—From April to October, tonic treatment. October 9th. Graefe's operation was performed by Mr. Critchett on the right eye. November 19th. The patient thought he saw more light with the eye operated on. The case is still under treatment.

ART. 91.—*The Cataractous Eye Compressor: a new instrument for facilitating the extraction of Cataract.* By JAMES VOSE SOLOMON, F.R.C.S., Surgeon to the Birmingham and Midland Counties Eye Infirmary.

(*Lancet*, Nov. 7th, 1857.)

In the removal of hard cataract from the axis of vision by extraction, after the section of the upper half of the cornea has been completed (in the right eye), and the capsule of the lens has been sufficiently opened, the operator, in order to dislocate the cataract through the pupil, raises the upper lid with the forefinger of the left hand, and with the "curette" in his right, makes pressure with the spoon end of that instrument upon the globe, at a point about midway between the lower margin of the cornea and the insertion of the inferior rectus muscle.

It will, however, sometimes happen, notwithstanding the corneal and capsular incisions have been properly executed, that the cataract does not come forward, but slips behind the iris, or perhaps sinks more or less deeply into the vitreous humor. Under these circumstances it is usual, and a very good practice, to get an assistant to harpoon the lens with a small and sharp hook, and then gently withdraw the cataract through the pupil and the corneal incision, care being taken not to avert the flap to such an extent as shall favor an escape of the vitreous. This manipulation to be safely performed, requires that it shall be executed by the steady and delicate hand of one who has been practically instructed in the operation under consideration. But such a one is not always at hand. I have therefore been led to devise and make use of the instrument, which consists of a cup of thin metal, with four elastic ribs attached to it, which fits on the end of the second finger; to the centre of the cup is riveted a curved stem, something less than half an inch in length; this stem terminates in a transverse bar, which is concaved, and set on at such an angle as will render it easy of adaptation to the globe of the eye.

Either silver or steel may be used for the cup and ribs. Each rib should be hollowed, so as to give it strength and elasticity.

It will be obvious to those accustomed to operate for cataract, that the upper lid can be elevated and fixed with the index finger, and pressure made upon the eyeball by the second finger of the same hand, arched in front of the eye, and having attached to it "the compressor." From the trials I have made with it, I believe that in the operation of extraction the surgeon will gain by its use an equivalent to a third hand. It is less painful to the patient than Daviel's spoon. The exact amount of pressure exerted is accurately appreciated through the tactile sensibility of the end of the finger. Moreover, by placing the stem of the hook held in the right hand just behind the upper part of the incision, a useful degree of counter-pressure can be made; and should the cataract not then come forward, or should any untoward accident threaten, the hook can be used to seize the cataract at the precise moment and in the exact mode that the operator may deem advisable. In fact, one mind will direct the whole of those manipulations, which demand skill and knowledge for their perfect execution.

P.S.—I have had made several instruments, which were modifications in detail, but not in the principle of the one delineated on this page, but prefer the

elastic ribs to a flat ring of metal, and the curved stem to a straight one set on obliquely to the cup.

ART. 92.—*On Micropia produced by the Use of Belladonna.*
By Dr. COENAZ, of Neuchâtel.

(*L'Echo Méd.*, and *Dublin Hospital Gazette*, March 15, 1858.)

Of late years, the medical journals have detailed several cases, in which a solution of belladonna, dropped into the eye, has caused a very curious phenomenon, making all objects appear very much smaller than natural. For this affection Donders has proposed the name of *Micropia*—one, certainly much more suitable than *Microscopia*, by which it has been hitherto called. This affection appears to be of very rare occurrence; for, not to mention the numerous cases of poisoning by belladonna—in none of which, as far as we are aware, has it been noticed—the solution of belladonna, or atropine, is daily used to examine the interior of the eye, and nevertheless, we cannot discover that micropia from mydriasis produced by the poison of the solanæ has been described before 1851.

Without investigating the explanations hitherto given for this fact (which all fail in this—that if they were correct, this lesion ought to exist, at least more or less, every time that an artificial mydriasis existed) or dwelling on the line of treatment insisted on (which is only waiting until the belladonna ceases to act, or, at the most, applying cold lotions), we will detail here the particulars of some cases of this kind which we are acquainted with, because it is important that every surgeon should know exactly, not only the normal effects of every remedy which he makes use of, but those also which it may produce in exceptional cases.

CASE 1.—In some cases, objects appear smaller than they are in reality. The cause of this anomaly has not been clearly proved. It occurred once in a very decided manner, in my right eye, after a few drops of solution of belladonna, which has the effect of diminishing the refractive power of the eye, were dropped into it. In reading with both eyes, the left alone accommodated itself to the true distance, whilst the right, though open, interfered with my seeing clearly. When I closed the right, I saw perfectly; when I closed the left, I saw equally well at the distance of about a foot; but I had to make some effort to do so, and the letters appeared to me much smaller. When the belladonna had exhausted its action, this anomaly disappeared.—*Donder's Nicropie*.—*Nederlandsch Lancet*, 1850-1, No. 10, Avril.

CASE 2.—M. J. V., æt. 40, of good constitution, never ill before, was for some time annoyed with *muscæ volitantes*. The eyes showed nothing abnormal; there was no unusual vascularity; the pupil was moderately dilated, and very active; his present health perfect. There was no pain either in his eyes or head. The patient makes no complaint, except of the *muscæ volitantes*, which are attributed to slight congestion of the retina.

To allow of more complete examination of the organ, a few drops of a solution of extract of belladonna were dropped into the eye in the evening. He passed a very good night, and on waking was astonished to find that all the objects around him had assumed a new appearance. The newspaper lay on a table near him, and, on taking it up, it appeared to be composed of microscopic characters, which he could only decipher with great trouble, and thanks, he said, to his always having had excellent sight. However, objects appeared as clear as usual; they were not surrounded with a haze, or with luminous areolæ; their size alone was remarkably diminished. He rang the bell, and the servant who answered it appeared to him not taller than a girl of ten years old. He started up, more and more astonished. The clothes which he takes up are those of a child; however, he puts them on without any trouble. He goes down to breakfast, and instead of his wife and children seated around the table, he sees only a little dwarf and some dolls. His surprise and fright are extreme; he hurries off to his physician, but will not go alone, so great is his fright. The horses he meets appear to him dogs; the dogs rats. In a word, everything around him appears to him borrowed from the Lilliputian world—

created by the imagination of the immortal author of "Gulliver's Travels." During this time an examination of the eye only shows considerable dilatation of the pupil; nothing abnormal in any other part of the organ. Cold lotions were applied, and after the following day everything was restored to its original condition, except the *muscæ volitantes*, which persisted.—*Warlomont d'une propriété peu connue de la belladone en instillations dans l'œil.*—"Annales d'Oculistique," t. xxix. (1853).

CASE 3.—A respectable tradesman was for a long time suffering from ophthalmia, which resisted all the measures used to subdue it. Tired of not gaining any relief, he applied to a quack, and got in return for his money a small bottle of an infallible eye-water, of which he was to drop one or two drops into the affected eye.

At bedtime he followed accurately the pretended oculist's directions, and fell asleep. On waking the next morning, he found himself, to his great surprise, in a most diminutive room, lying in a Lilliputian bed, which, however, appeared too large for him. Astonished at the sudden change, he rang the bell, and instead of his usual attendant he saw a little girl come in, who appeared not to understand one of his questions. He then looked for his clothes, but, like everything else, they were of ridiculously small size. These trowsers and this coat, thought he, will never be of much use to me; and yet he got into them with perfect ease. When he went down to the breakfast-room, where his wife and daughter were waiting breakfast, he thought he saw two puppets seated at a table which seemed to him some toy. In fact, he saw everything as if he was looking through an opera-glass reversed. Naturally alarmed at these persisting errors of vision, he sent, in a great hurry, for his physician, who ascertained that he was attacked with a very rare affection known as *microscopia*. The oculist's drops had contracted the visual power of the optic nerve. A prolonged treatment restored the power of vision, but it has continued weak; and the man will long regret the confidence he placed in the vender of charms.—"*Journal de Med. Chir. et Pharmacie, de Toulouse*," Mai, 1857.

"Dr. Hosack, of Amsterdam," says Dr. Cornaz, "has furnished me with the following case:—

"A Dutch lady, æt. 50 years, of a nervous temperament, subject to congestion of blood in the head (caused probably by her menstruation not being regular of late), and neuralgia of the trifacial nerve, particularly of the supra-orbital branch, which tormented her excessively, asked my advice about a dimness of sight to which both her eyes, but more particularly the right, were subject. Examination showed that she had commencing presbyopia, complicated with slight amblyopia. In order to examine the interior of the right eye by means of the ophthalmoscope, I dropped into it one drop of a solution of sulphate of atropine, which enabled me to discover a commencing cataract.

"But it struck me as remarkable that the patient said to me at the time that with this eye she saw objects smaller than natural, which gave her not a little uneasiness, and did not disappear until about six months afterwards. This lady lives in the country, and I did not see her a second time. This micropia persisted, although the pupil had some days afterwards resumed its natural size and mobility.

"Although these are the only cases of the kind which I can of myself describe, the phenomenon has not been unnoticed by other physicians, among whom, besides Warlomont, we may reckon M. Siehel, of Paris, and M. Van Roosbroeck, of Ghent.

"Would the micropia cease if the subject of it were to look through a very small opening, such as a pin-hole in a card? We are inclined to think it would, and invite those who may meet with such cases to try the experiment.

"Would the phenomenon be reproduced every time that a fresh drop of the solution of belladonna were dropped into an eye which had once been so affected? Very probably, for if we are not mistaken, its existence depends on a form of idiosyncrasy. This word gives no explanation of the thing which it designates, but we understand by it the unusual symptoms which this or that substance produces in certain individuals; symptoms which have no relation

with those which the same substance produces on the majority of people. It is thus that strawberries produce vomiting in some persons—an effort of the constitution to get rid of a poisonous substance; mussels, also, are said to produce urticaria in particular individuals; and an Italian journal relates the case of a conscript who was obliged to be invalided because he could not bear the yeast contained in the bread: certain odors constantly produce syncope in certain persons, &c. &c. It appears to me that micropia, from the use of belladonna, belongs altogether to this category of phenomena, inasmuch as it is not an exaggeration of the symptoms usually produced by this drug, but an occurrence altogether extraordinary.

“Such would not be the case if intoxication or some general effect was produced in some few cases by the local application to the eye of narcotic substances, such as belladonna (Chassaignac), and opium (Wurtzer and Von Ammon); in fact we would only see in that case increased susceptibility of the constitution to the medicines. Whatever be their exact nature, both micropia and the possibility of intoxication consequent on the employment of collyria of atropine, are two rare facts, of the possibility of the existence of which it is right that every physician should be acquainted.”

ART. 93.—*On Anchylosis of the Stapedio-vestibular Articulation, associated with rheumatism and gout, and based on 136 dissections.* By Mr. TOYNBEE, F. R. S.
(*Proceedings of the Royal Med. and Chir. Society*, March 23, 1858.)

The author commenced his paper by showing that there is a distinct joint between the circumference of the base of the stapes and the inner surface of the fenestra ovalis, and that this stapedio-vestibular joint (perhaps more constantly used than any other in the human body) is very subject to be affected with rheumatic gout (rheumatic arthritis), producing in various stages of its progress various degrees of deafness. He considered the poisons of gout and rheumatism to be thus far identical in their nature, that they both consist of an excess of the nitrogenous element of the blood, and that this nitrogenous element in the case of rheumatism is fibrine, and in that of gout albumen. The view that the element in the blood causing rheumatism is fibrine in excess, was supported by the following facts: 1. That this fibrine is found in great excess in the blood of rheumatic patients, that Lehmann asserts that of all diseases the fibrine is in general increased in the largest portion in acute articular rheumatism and pneumonia. 2. That this excess of fibrine also manifests itself by the excess of urates eliminated from the blood in patients with the so-called rheumatic diathesis. 3. That attacks of acute rheumatism come on contemporaneously with the inability of the system to use the excess of fibrine in the blood, and to eliminate the excrementitious urates. 4. The attack of rheumatism is produced by any cause which prevents the conversion of the fibrine of the blood into fibrous elements of muscles and other fibrous organs, and the due elimination of the urates. 5. In cases of acute rheumatism, the excess of fibrine in the blood finds an outlet in fibrinous effusions; whilst in chronic rheumatism it finds an outlet in hypertrophy of the fibrous structures. 6. All curative measures for rheumatism do good in proportion as they cause the excess of fibrine to be eliminated in the form of urates or consumed in the process of assimilation. 7. All preventive measures in rheumatism consist in the use of dietetic or other hygienic rules, whereby the entrance of an excess of fibrine into the blood is prevented, or when it is introduced that it may be assimilated, and the effete matter eliminated as urates. That the nitrogenous element in the blood which causes gout is albumen in excess, was indicated by the following facts: 1. Whether known to us as globuline, gelatine, chardine, gluten, etc., the textures containing albumen are those implicated in gout. These textures may be divided into four classes: the blood-cells, containing globuline; the cellular, mucous, and purely serous membranes, containing gelatine; the cartilages, containing chondrine; and the cartilage of bone, gluten. 2. That globuline, the coagulable matter of the blood-cells, is more abundant in plethoric gout, and that one source of the increased quantity of uric acid in the blood of some gouty patients may be

ascribed to the increased quantity of globuline in the blood. 3. The food inducing an attack of gout is usually peculiarly rich in albumen. The analogies and differences between gout and rheumatism are thus presented in a tabular view:—

GOUT.

CAUSES.	{	1. <i>Predisposing.</i> An excess of the nitrogenous element of the blood, probably albumen from the use of too highly nitrogenous, or from mal-assimilated food.
		2. <i>Exciting.</i> The sudden addition to the blood of so large a quantity of albumen that it can be no longer assimilated, and becomes a poison; or any circumstance, as fatigue, which prevents this assimilation, and consequently the elimination of the urates. The effort to rid the system of all poison constitutes the attack of gout.
SEAT.	{ Vesicular Tissue.	1. Cellular tissue—as bone, cartilage, or cellular membrane.
		2. Mucous membrane—as the lungs, liver, stomach, kidney, &c.
		3. Serous membranes—as pleura, peritoneum, arachnoid, synovial membranes, &c.

RHEUMATISM.

CAUSES.	{	1. <i>Predisposing.</i> An excess of the nitrogenous element of the blood, probably fibrine, from the use of too highly nitrogenous, or from mal-assimilated food.
		2. <i>Exciting.</i> The sudden addition to the blood of a large quantity of this element, or any circumstance, as the application of cold, which prevents the assimilation of the element and the elimination of the urates. The violent effort made to rid the system of the poison constitutes the attack of acute rheumatism.
SEAT.	{ Fibrous Tissue.	1. Muscular fibre.
		2. Hard fibrous tissues—as tendons, aponeuroses; fibrous visceral envelops, as the fibrous layer of dura matter, pericardium, synovial and other serous membranes.

The author then showed that in the disease properly called rheumatic gout, both fibrous and vesicular, otherwise named fibrinous and albuminous structures, are affected; and he was thus led to consider the diseases of the stapedio-vestibular articulation, in which both fibrous and vesicular structures are affected, as constituting what is called ordinary rheumatic arthritis, or rheumatic gout. The author then proceeded to describe and classify the 136 dissections laid before the Society, of rheumatic gout causing ankylosis in the stapedio-vestibular articulation.

In 49 cases there was simple expansion of the articulating border of the base of the stapes; in 29 there was expansion of the articular border of the base of the stapes, with calcareous whiteness; in 25 there was expansion of the whole of the base, and effused bone connecting it to the vestibule; in 21 there was osseous matter effused between the stapes and the fenestra ovalis, producing simple ankylosis; in 12 there was osseous matter effused around the fenestra ovalis. In addition to the 136 specimens of bony ankylosis, the author alluded to 53 dissections of membranous ankylosis, the particulars of which had been previously laid before the Society; in the latter cases the ligaments of the stapedio-vestibular articulation had become more rigid than natural. The author stated that rigidity of the ligaments, which is the usual morbid condition in cases of deafness in advancing years, may, as a general rule, be diminished.

In speaking of the diagnosis of the disease, the author stated that there is usually what is called the uric acid diathesis. Frequently the patient has had an attack of rheumatism, gout, or rheumatic gout, but the only symptom in the ear is gradually increasing dulness of hearing, usually worse during a cold, the adapting power of the ear being the first to be diminished. There is

usually an absence of the distressing noises present in debility of the nervous apparatus of the ear. The mucous membrane of the fauces and nose is congested and tumefied, the membranous meatus auditorius is also red, and often tumefied. The osseous walls frequently present rounded bulgings. The membrana tympani is often opaque and dull on its surface. If the ligaments only are affected, as they are in the earlier stages of the disease, or if the circumference of the base of the stapes be merely slightly expanded, considerable benefit may be obtained by persevering treatment. This treatment consists in the use of general remedies, whereby the poison of rheumatism and gout is removed from the blood, and in the local application of counter-irritants. In the later stages of the disease, when bony anchylosis has taken place, no benefit can be attained further than the removal of the symptoms arising from congestion. The paper concluded with a recital of a case illustrative of the disease, with details of the pathological conditions found in some upon dissection.

ART. 94.—*On Enlarged Tonsils.* By Mr. PAGET, F. R. S.

(*Medical Times and Gazette*, Feb. 6, 1858.)

Speaking of enlarged tonsils and their treatment, in some notes of practice among the out patients of St. Bartholomew's Hospital, Mr. Paget says: "There is a physiognomy by which the children and young people that have simple enlargement of the tonsils may usually be known at once. Together with a general appearance of feeble health, they have a peculiar shape of the mouth and jaws. The jaws are narrow, so that the teeth are crowded and look disproportionately large. The aperture of the mouth is small, habitually slightly open; the edges of the lips thick, but not pouting, the lower lip rather inverted; the angles of the mouth a little raised; the front of the mouth is almost uniformly convex; the lower lip scarcely recedes towards the chin, but projects with a broad convexity, as if its middle part were slightly pushed forward by the tip of the tongue. The general expression is that of a gradual narrowing and a smooth uniform rounding of the lower part of the face, which make it look small and featureless.

"These peculiarities of shape appear due, partly to defective growth of the jaws, and partly to the habit which the patients have of advancing the lower jaw and tongue, in the position in which these parts are yet more evidently held during acute inflammation of the tonsils.

"For chronic enlargement of the tonsils, whether through simple overgrowth or in consequence of chronic inflammation, the excision of the projecting portions seems by far the best treatment. So far as I have seen, the cutting of tonsils is never followed by severe hemorrhage or other serious inconvenience, provided they are not inflamed at the time of being cut. And I believe that if other means of reducing the size of enlarged tonsils be not quickly beneficial, the excision should be adopted both oftener and earlier than it commonly is. One frequently sees cases in which delay in operating has given time for the occurrence of the incurable 'chicken-breast' deformity of the chest, which Dr. Warren pointed out as a common result of the habitual hard breathing of children with enlarged tonsils.

"The double vulsellum and common probe-pointed bistoury are, I believe, the most advisable instruments for this operation, because, among other reasons, they are equally fit for all cases. There are certainly some cases for which even the most improved guillotines are insufficient instruments; those, namely, in which the enlargement of the tonsil extends so far down by the side of the pharynx, or up towards the soft palate, that a fair portion of the disease cannot be taken within the ring or loop of the guillotine. For these broad-based enlarged tonsils the knife alone is applicable; and, to remove them effectually, it is advisable to have a facility which will hardly be possessed if the knife be used for them alone, but which the hands accustomed to the cutting of common enlarged tonsils will seldom lack. The general direction for the operation must be to cut from below upwards, the blunted point of the knife being carried well backwards, and its edge just internal to the posterior arch of the palate."

ART. 95.—*On Lesions of the Epiglottis.* By Dr. HORACE GREEN.
(*New York Journal of Medicine*, Nov., 1857.)

The following are the conclusions of a paper recently read before the New York Academy of Medicine: 1. The epiglottic cartilage is subject to serious alterations of structure, which, it is believed, have not received that attention in practical medicine which their importance demands. These lesions, which are ordinarily the results of inflammation, are *erosions* of the mucous membrane of the epiglottis, *ulceration* of the membrane and its glands, and *oedema* of its areolar tissue. Both erosions and ulcerations, although occasionally found associated with tuberculosis, are often found to exist as primary disease, being the antecedent, and, in many instances, the exciting cause of other grave affections. 3. Erosions occur much more frequently than ulcerations, and differ from the latter in being much more superficial, as they are confined to the mucous membrane, and ordinarily to its epithelial layer. 4. Primary ulcerations of the epiglottis are alterations of structure, differing essentially from erosions. They originate apparently in the follicles of the mucous membrane, which soften and ulcerate, and, penetrating the fibro-cartilage, ultimately destroy a portion of the epiglottis, and, if not arrested, prove the cause of much more serious disease. 5. Oedema of this cartilage is a lesion of somewhat frequent occurrence, the result, ordinarily, of catarrhal inflammation. It is attended generally with loss of voice and difficulty of deglutition, and is occasionally complicated with ulcerations of the cartilage, by which, in some instances, the epiglottis has been completely destroyed. 6. The epiglottis, which is almost insensible in its normal state, becomes, when diseased, frequently the source of great irritation to the more sensitive adjacent parts. The presence of this cartilage is not indispensably necessary to secure deglutition. It is necessary, however, to render this act perfect. But its most important function is to cover over and protect that exquisitely sensitive portion of mucous membrane which occupies the supra-glottal space, and which is the true sentinel at the glottic opening. 7. But the most important practical conclusion found in these propositions is, that some of the lesions which have now been described are often, it is believed, not only among the earliest manifestations of thoracic disease, but are themselves, in many instances, the true *exciting causes* of these affections; and, furthermore, this postulate once established, that we have it in our power, by timely topical medication, to positively arrest cases of disease which otherwise would, and in many instances do, terminate fatally.

ART. 96.—*Rupture of the Trachea from a Fall.* By Dr. ATLEE.
(*American Quarterly Journal of Med. Science*, Jan., 1858.)

But few cases of this kind are on record. Dr. Atlee refers to two only: one reported by Ryland, in his treatise on "Diseases and Injuries of the Larynx and Trachea," the other related by Mr. Robertson, in the "*Lancet*" for September 6th, 1856.

CASE.—On the 22d of July, 1856, a boy, four years of age, in running across the street, tripped at the kerb-stone and fell, striking his neck with force against the scraper at the side of the door of his father's house. The blow caused for a few moments extreme difficulty of breathing, and Dr. Atlee was sent for. He (Dr. Atlee) reached the house not more than five minutes after the injury had been received. The child was then seated upon his mother's lap, his head resting against her arm, and breathing naturally, or nearly so; there was some blueness of the lip, but this soon passed off; on his countenance there was not much appearance of distress. Where the neck had come in violent contact with the scraper there was not the slightest mark upon the skin. Dr. Atlee was about to congratulate the family upon the slightness of the injury, when the child, struggling to free himself from his mother's arms, threw himself violently backwards. He at once became enormously swollen, and in a moment was dead. The cause of the swelling was due to the entrance of air

into the cellular tissue, and it extended over the head, the neck, the trunk, and the upper extremities to the ends of the fingers. At the sternum, the finger, before reaching the bone, penetrated fully an inch. It was unfortunate that a post-mortem examination was not permitted, but the evidence afforded by Dr. Atlee is, we think, conclusive. He shows that when the neck had struck the scraper, the rings of the trachea had been separated from one another, but that they had remained in place until dislocated by the act of throwing the head backwards. When this occurred, the air contained in the lungs was forced violently into the cellular tissue of the body.

ART. 97.—*On the Treatment of Suppurated Cervical Glands.*

By M. PACET, F. R. S.

(*Medical Times and Gazette*, Jan. 2, 1858.)

In the notes of practice among the out-patients of St. Bartholomew's Hospital, to which reference has been already made, are the following remarks:—

"The great number of strumous children, that come to out-patient's rooms with slowly suppurating cervical and other lymphatic glands, supply, I believe, evidence enough that the best plan in all such cases is to leave the suppuration to increase till the skin over it is so thin, that one might think that in a day or two spontaneous ulceration would ensue. The thinnest part of the skin should then be punctured with a small knife, so as to make an opening not more than two lines in length. Through this opening the pus should be allowed to flow out slowly: the abscess-walls should on no account be pressed. If the pus will flow in mere drops, it is well; if it stop altogether, no harm will follow. No more should be done than to cover the abscess with a soft poultice or with warm water-dressing, which should be removed twice or three times a day. The abscess thus treated will slowly empty itself, as the inflamed and stretched skin slowly recovers its elasticity and contractile power; or if the little wound should heal before the emptying, it will in a day or two reopen; or, at the most, the puncture may need to be repeated. The advantage of the plan is, that the punctured skin does not ulcerate or slough, the abscess-wall does not inflame, and recovery ensues without disturbance of the general health, and with a scarcely visible scar. In the great number of cases that I have thus treated, I do not remember to have failed to obtain these advantages. Usually, the healing of the abscess is completed within three weeks—in strong contrast, both as to time and manner, with the tedious healing and ugly scarring that often ensue when these abscesses are left to open spontaneously, or are opened widely with the knife or caustic.

"The internal treatment which I have always employed in these cases when suppuration has taken place (and which, if any, will prevent its occurrence), is the giving of tonics, or iron, and good food. The medicines for children may be, according to the case, from two to five grains of the potassio-tartrate of iron, or from five to ten grains of the liquor cinchonæ, or a drachm of the cod-liver oil, three times a day. The first I think best in ordinary cases, in which the characters of struma are well marked, and not complicated; the second appears best when with struma there is marked debility, drooping, deadly pallor, duskiness; and I think it is a very good plan to give the bark with lime-water; the third seems fittest when great emaciation exists. In all cases it appears useful to give occasional small doses of the hydrargyrum cum cretâ, with rhubarb or the sesquioxide of iron. I doubt whether iodine does good in any of these cases, unless in combination with iron."

(B) CONCERNING THE CHEST, ABDOMEN, AND PELVIS.

ART. 98.—*A new Bandage for Fracture of the Clavicle.* By Dr. JULIAN CHISHOLM.

(*Charleston Med. Journ. and Review*, March, 1858; and *American Journal of Medical Science*, April, 1858.)

Dr. Chisholm describes a simple, and what seems to be, at the same time, a very efficient bandage for fracture of the clavicle.

The bandage is formed of a strip of cloth, from three to five feet long, and from eight to eighteen inches wide (according to the size of the patient), which is slit from both ends in such a way as to leave a bridge from one to two inches wide in the centre, connecting the two lateral half strips. A soft pad having been placed in the axilla, to act as a fulcrum upon the riding fragment, the affected arm is carried over the chest, the palm of the affected hand resting upon the side of the thorax, under the border of the opposite armpit. This position of the arm removes all deformity, and brings the fragments in apposition. The centre of the bridge of cloth is now placed under the elbow, the superior strip, which covers half the height of the affected arm, is made to encircle the chest; one end is carried forward, the other backward, to meet the opposite armpit, where, after enveloping the hand, and being firmly drawn upon the affected arm, they are secured with needle and thread, pins, or an ordinary knot. The inferior strap, which is placed under the affected arm as a sling, is made to traverse the chest in the same way, the ends meeting over the opposite shoulder, where they are secured by the same means. If at the several points where the strips cross each other, a stitch or a pin is placed, the result will be a firm casing, which, even in the most restless child, cannot be disarranged. The needle and thread is by far the preferable mode of completing and sustaining the adjustment, as the stitches are not apt to be interfered with by the patient or friends; pins, on the contrary, are often tampered with, particularly if there should be any restraint from the bandage. As the material is quite soft, no binding or excoriations are produced. The bandage supports the entire limb in an easy position, and clasps the arm sufficiently to prevent injurious motion, without being irksome to the patient. It requires no constant renewal, as one single application, if carefully made and properly secured, can be worn until the cure is perfected.

Dr. Chisholm says he has used this simple contrivance for several years with satisfaction.

ART. 99.—Removal of the Entire Body of the Scapula. By Mr. WALTER, of
Pittsburg, U. S.

(*British Med. Journal*, March 20, 1858.)

CASE.—John Kling, a farmer, residing in Franklin Township, Westmoreland County, Pennsylvania, æt. 44 years, of hepatic constitution, had enjoyed good health until some two and a half years ago, when pains of a rheumatic character were felt about the left shoulder, not, however, so severe as to interfere for a considerable time with his daily duties. About a year ago a firm tumor became perceptible on the body of the left scapula, with occasional dull and lancinating pains. The tumor steadily and gradually increased, and with its increase the pains became more severe and constant. When he applied for admission into my hospital, it had attained a size as large as the head of a child three years old, was hard, immovable, and firmly attached to the body of the scapula; the skin covering it was slightly red, and traversed by enlarged veins. There were two fistulous openings on its surface; one caused by a seton which had been passed by a medical practitioner some time before; the other the result of an abscess which opened spontaneously. This latter led to a cavity in the diseased structure, exuding a glairy mucous fluid in small quantity. His sleep had become so broken by continual pain, and his appetite so injured, that his strength was much reduced, and his pulse small and rapid.

On a careful examination of the tumor, from its nature and firm attachments, I determined on resection of the scapula, assisted by Drs. Henderson, Lusk, and Gunster, on September 12th, 1854. A long and free incision was made from the acromion process horizontally to the posterior border of the scapula, and another from the centre of the first directly downwards below the margin of the tumor. The flaps of skin thus formed were reflected; the neck of the scapula, being found sound, was freed by touches of the knife; a chain saw was passed underneath, and the body of the bone severed from its neck; the whole mass and body of the scapula was then detached from the thorax. Profuse bleeding from the subscapular artery occurred, which was ar-

rested by ligature. The wound was lightly filled with lint; the flaps of skin approximated, and retained by a few stitches, a linseed-meal poultice covering the whole; and the patient was removed to bed.

It is worthy of note, that before commencing the operation, chloroform was administered, but discontinued, from its effects on the pulse and respiration, causing a sudden corpse-like appearance of the patient. All danger was, however, averted by artificial inspiration, with the tongue drawn forward; and the operation began while the patient was yet partially insensible to pain. For several days the injurious effects of the anæsthetic continued, the patient feeling very sick, with frequent vomiting; the circulation very feeble. Recovery, however, gradually took place; the wound suppurated duly and kindly; appetite returned; all functions became healthy.

At the end of four weeks the large wound had entirely closed, in part by first intention; the residue by suppuration. A week later, the patient left the hospital, being able to make considerable use of his arm. A year afterwards, I heard from him, expressing his gratitude and delight at being freed from a painful disease, and able to follow the laborious duties of a farmer. Such was the freedom of motion and restoration of power in the arm, that he deemed it no longer necessary to observe the advice I gave him on leaving (to give it all possible rest, and to attempt no exercise but of a gentle kind).

The extirpated tumor, upon examination, was found to consist of a cartilaginous mass filled with a spicula of bone, the periosteum of the scapula being absorbed, and its surface corroded, and covered with stalactiform excrescences.

ART. 100.—*Obliteration of the Superior Vena Cava.* By Dr. OULMONT.

(*New York Journal of Medicine*, Jan., 1858.)

In a report on the recent advances of the medical sciences in France, by Dr. Brown-Séquard, reference is made to a paper by Dr. Oulmont upon this rare and little-known affection. Dr. Oulmont, it appears, has observed four cases, and found fifteen other cases in various books or journals. He divides these cases into two categories, in one of which the obliteration is due to concretion or internal tumors, while in others he places the cases of external pressure upon the vein. Of his nineteen cases there are five of coagulation of blood in the vein, three of internal cancer, five of cancerous tumors of the mediastinum or lungs, two of tuberculous ganglions, four of aneurisms of the aorta. Ordinarily the first symptoms are coughing and dyspnoea, sometimes amounting to intense orthopnoea. In some cases there has been blood with the mucus of the expectoration, and even a real hæmoptysis or hæmatemesis, with palpitations of the heart. In other cases, the first symptoms have been cephalalgia, vertigo, and cerebral congestions. In some cases a very predominant symptom of the disease, and a constant one after a time, cedema of the face has been the first observed. It begins either on one or the other side of the face, quickly extending to the whole of it, and to the forehead and pericranium. The neck and the superior limbs become afterward infiltrated, and at last the cedema reaches the chest and the upper part of the abdomen, rarely extending further down, while the inferior limbs are perfectly normal. There is in the face and other infiltrated parts a bluish color, giving the appearance of cyanosis. All the superficial veins are more or less enlarged.

After a time cephalalgia and vertigo are almost immediately produced at every movement; sometimes there is a real attack of apoplexy.

Among the other symptoms we will point out insomnia, various hemorrhages (from the nose, the lungs, or the stomach), fits of suffocation, cough, &c. The pulse, strange to say, remains usually quiet, except at the end of the disease, when fever supervenes. Frequently there are palpitations, and sometimes albumen in the urine.

All these symptoms increase gradually, and at last delirium, coma, agitation, fever, appear, and are soon followed by death. In some cases death came suddenly and quite unexpectedly. We need scarcely say that, unfortunately, there is nothing to be done in the way of treatment in this disease, except complete rest, the avoidance of emotions and of stimulating food and drinks.

ART. 101.—*Case in which a Foreign Body was removed from beneath the Heart.*
By Dr. E. S. COOPER.

(Pamphlet, San Francisco, Whitton & Co., 1857.)

The report of this remarkable case is published by the San Francisco County Medical and Chirurgical Association, as an additional paper to its "Transactions for 1857," and it is authenticated by the names of several medical men who were witnesses of the operation.

CASE.—Mr. B. T. Beal, æt. 25, of Springfield, Tuolumne County, California, with some other young men, in a frolicsome mood, resolved to burst an old gun, and accordingly loaded it with about eighteen inches of powder, to which they connected a slow match and then endeavored to seek security by flight. Unfortunately a brisk wind blew up the powder with great rapidity, and the gun exploded before they had retreated far. A slug of iron had been driven into the gun as a temporary breech pin, which bursting out in the explosion struck Mr. Beal on the left side below the armpit, fracturing the sixth rib, entering the chest, and lodging, as was afterwards found, beneath the heart upon the vertebral column, just to the right of the descending aorta, where it had evidently remained from the period of the injury, on January 26th, 1857, until it was removed April 9th, seventy-four days after. In a state of extreme prostration he was brought to the city, having had frequent discharges of several ounces of purulent matter at a time from the chest through the original wound. The left lung had lost its function, probably less on account of the violence done the lung at the time than from the subsequent accumulation of pus in the chest, though he had bloody expectoration for a few days. He came to my infirmary in Mission Street, 8th of April, and during the night following had alarming symptoms of suffocation, so much so that I entertained most serious apprehensions that he would not live till morning. So urgent had his symptoms become that after his arrival he was constantly in absolute danger of dying from suffocation, so that no time was to be lost, even for him to obtain rest from the fatigues of his journey.

Operation.—The patient being placed on the right side, an incision through the soft parts three inches long was made; commencing opposite to the seventh true rib, and following the track of the original wound, was carried over the fifth and sixth ribs, which were drawn close to each other by contractions, consequent upon the injury. The sixth true rib was found fractured and slightly carious. A transverse incision three inches long, was now made, beginning at the centre of the first, when the soft parts were reflected, so as to expose the ribs. Torsion was applied to one intercostal and two or three small arteries which bled rather freely. The wound was now fully absterged, after which an effort was made to find the breech-pin by using the probe. This failing, the incisions were lengthened, and the ribs further exposed. A portion of the sixth rib, which was carious, was now removed, and was followed by the discharge of about ten ounces of fluid resembling venous blood, contained in a cyst which was broken by the removal of the portion of the rib. A most extensive but careful examination with the probe was now made, in order to detect, if possible, the foreign body, yet to no purpose; but air having already been admitted into the chest, I unhesitatingly removed portions of the fifth and seventh ribs, together with such an additional piece of the sixth as was necessary to make ample room to afford every facility for the further prosecution of the search. Some very firm adventitious attachments were now broken up with the fingers, which gave exit to an immense amount of purulent matter—two quarts at least—which had been entirely disconnected with the fluid first discharged from the chest. The pleura had several large holes through it, and was thickened to four or six times its natural state in some parts. The pulsations of the heart in the pericardium could be distinctly seen through these holes. Brandy was now administered freely to the patient, who appeared to be rapidly sinking. The left lung was found completely collapsed after the discharge of purulent matter. By giving brandy freely the patient soon began to revive, when the search for the foreign body was resumed. At this time the

fingers could be placed upon different portions of the heart and feel its pulsations distinctly, but could obtain no clue to the existence of a foreign body. The patient now appeared almost completely exhausted. Brandy was given freely. Chloroform was not administered at first, owing to the expected collapse of the left lung on the admission of air into the chest; but a considerable reaction taking place, a limited quantity was now used, and the manipulations continued. A sound was introduced, and the thoracic cavity explored for at least three-quarters of an hour before anything like a metallic touch could be recognized, and then it was so indistinct as to leave the matter doubtful.

The space immediately above the diaphragm was considered the point at which the metal was most likely to be found; since the immense amount of suppuration which had taken place, it was thought might have dislodged, and gravitation carried it down to the bottom of the chest. The metal not being found here there was no longer any probable opinion to be formed as to its whereabouts, and to describe the difficulties of the search that followed would be difficult if not impossible. No one can have any just conception of the degree of patience required to do what was done, save the one who did it. This is not spoken boastingly, but it is simply the truth. It is sufficient to say that a general exploration of that side of the chest was made, and then it was taken by sections, occasionally passing through holes in the pleura, which latter appeared to have scarcely no normal relations to the surrounding structures, touching by lines the entire surface of the parts, and at last the sound appeared to encounter something of a metallic nature beneath the heart, but the pulsations of that organ were so strong against the instrument as to render it difficult to settle the matter definitely. At last, however, it became evident that the location of the iron was found, and I endeavored to move it out of its position with the point of the sound, in order to get it into a place more eligible for extraction by the forceps. I failed in this, and in manœuvring the instrument finally lost the track by which the sound had first passed back of the heart to the metal; and it was during my efforts to recover this, and which was accomplished with the more difficulty owing to some membranes falling in the way, that I discovered the sound had in the first instance reached the metal by passing between the descending aorta and the apex of the heart. The metal being again found, the sound was steadily and strongly held in contact with it until a pair of long lithotomy forceps was thereby conducted to the spot and the breech-pin seized and extracted, which, however, was the work of several minutes, owing to the great difficulty in grasping it even after the forceps was made to touch it. The forceps, however, being heavier, the motion of the heart was not so embarrassing to its manipulations as it had been to that of the sound; but owing to its size, it could not follow the sound and be expanded sufficiently to seize the metal without lifting the apex of the heart considerably out of its natural position. After the metal was extracted, the patient was turned on the wounded side, and a tent placed in the track of the original sinus, after which the wound was dressed and the sufferer permitted to rest in bed with his body still inclined towards the injured side.

April 10th.—Greatly prostrate; slight pain in the left breast; no motion of that lung; gave morphine.

11th.—Same as yesterday.

12th.—Slight cough; gave enema and light nourishment.

13th.—Evacuations from bowels; slight discharge from the wound, being the first since the operation.

14th.—Improving; considerable appetite.

19th.—Considerable cough.

20th.—Severe cough to-day and pain in the right side, as also in that of the wound, though not so great as in the other.

Skin dry; no expectoration; urine scanty and highly colored. These symptoms were very alarming, the more so from the fact of their implicating the hitherto sound lung.

The pneumonic symptoms continued without abatement for several days, and finally subsided, but left the patient greatly prostrate. On the 26th, purulent expectoration began and continued to increase for about a week,

when nearly a pint was discharged in the space of twenty-four hours, and during this time but little escaped from the wound. After this period, for nearly two weeks, the discharge was greater or less from the wound in proportion to the amount of purulent matter expectorated and *vice versa*. The matter from both places being of the same quality and occasionally tinged with blood.

At the end of two weeks from the time the communication between the trachea and the original suppurating surface appeared to have been established, the purulent expectoration began gradually to subside, and the patient's condition slowly to improve until the end of seven weeks after the operation, when he left the city. There was no perceptible motion of the left lung at this time. He was considerably fatigued by his journey from the city to the country, and appeared worse for several days in consequence, but eventually began to improve rapidly, and continued to do so until three weeks since, at which time, as is well known, he visited this city, and was so improved as not to be recognized by medical men present at the operation, who had seen him every day for some weeks after.

Aug. 1st.—*Present condition*.—The external wound has entirely cicatrized. No cough nor pain in the left side—good appetite, and all the functions of the system well performed.

The left breast is somewhat sunken, but the upper lobe of that lung has recovered in a great degree its former action.

ART. 102.—*Two cases of Intestinal Obstruction in which the Colon was opened in the left Inguinal Region.* By Mr. CURLING, F.R.S., Surgeon to the London Hospital.

(*Lancet*, Jan. 30, 1858.)

Operations for the formation of an artificial anus in cases of insuperable obstruction of the lower bowel from various causes have been performed in so many instances with a satisfactory result, that the operation is now regarded as established, and creditable to surgical art. But it still remains undecided which is the best operation; the *inguinal*, in which the peritoneum is opened and the anus formed in the sigmoid flexure of the colon; or the *lumbar*, in which an anus is established in the loin by an opening made in the descending colon external to the peritoneum. Mr. Cæsar Hawkins, in a valuable communication to the "*Medico-Chirurgical Transactions*," in 1852, gave a table of forty-eight cases of artificial anus, and after a careful comparison of the results of the two operations, came to the conclusion, "that each operator, weighing the advantages and disadvantages of an artificial anus in front of the abdomen, and of one in the lumbar region, is, as yet, fairly justified in selecting whichever situation he thinks best on the left side of the body." The point to be determined is an important one, and the following particulars of two cases in which the author has recently had occasion to perform the lumbar operation are adduced with the view of adding to the recorded facts, and of pointing out difficulties liable to be encountered by the surgeon. In 1852, Mr. Curling opened the colon in the left loin, for the relief of an obstruction from rectal disease. The patient recovered, and returned to his home in Scotland, where after some months he died. In this instance, the descending colon was found fully distended and was readily opened. Such was not the case in the following operations.

CASE 1.—Elizabeth P—, a tailoress, æt. 40, was admitted into the London Hospital, Feb. 24th, 1856, on account of obstruction of the bowels of four weeks' duration. She was a married woman, and had borne a large family. She had never suffered from constipation, nor had she observed any diminution in the size of her motions previous to her present illness. In her last confinement, two months ago, she had less hæmorrhage than usual, but both before and since she had been subject to severe leucorrhœal discharges, accompanied with violent pains in the lumbar region. Four weeks since, her bowels were quite regular. On going to the closet on the twenty-eighth day prior to her admission, she found great difficulty in relieving her bowels, and,

after considerable straining, passed a small amount of feculent matter of the usual size and consistency. Since that period she had passed nothing but a small quantity of slimy matter. She sought medical advice, and took aperient medicines, but without relief. At this time she had pain in the right iliac region, extending to the umbilicus, and loss of appetite, but no sickness. Enemata were administered, and she afterwards took croton oil. This was followed by increase of pain, and violent vomiting every quarter of an hour. The day prior to her admission she was sick about twelve times; all her symptoms were increasing in severity, and she was unable to bear the weight of the bedclothes on the abdomen. By morphia, sinapisms to the abdomen, ice to suck, small quantities of brandy and soda-water, her symptoms were mitigated, and her stomach was able to bear beef-tea and arrowroot. I first saw her the next day, the 25th. Vomiting had quite ceased; her countenance was anxious and cachectic; pulse 120, and weak; abdomen greatly distended and tympanitic. On examination per anum, I discovered at the distance of three inches, a close, carcinomatous stricture of the rectum. On passing my finger into the vagina, I found the indurated, scirrhusous mass to be considerable. Mr. Luke saw the case with me, and proposed the passage of a large gum-elastic catheter through the stricture, and the injection of warm water, with the view of breaking up the fecal matter. This was done after considerable difficulty, and about a pint of water injected, when a small quantity of feculent matter came away. But as I found that adequate relief could not be obtained in this way without forcible dilatation of the diseased parts, and the passage of a larger tube, I desisted from further attempts, and proposed the operation for artificial anus, which was performed the next day (the 26th), chloroform being given. In the left loin, which was distended and prominent, I made a transverse incision, two fingers' breadth above the ileum, its centre being exactly midway between the anterior and posterior superior spinous processes. After the division of the layers of muscle and the fascia transversalis a quantity of fat was exposed. On separating this, the peritoneum was brought into view. Careful search was made for the colon, and the wound was dilated towards the spine, the sacro-lumbalis being partially divided, but the intestines could not be found. I was obliged, therefore, to open the peritoneum, when a quantity of serum escaped, and a portion of small intestine protruded. Passing my finger into the cavity, I discovered the colon, contracted and compressed against the spine by the distended small intestine. I drew the colon into the wound, and laid it open by a longitudinal incision, about an inch and a half in length. The sides of the gut were then secured to the lips of the wound by sutures. Very little blood was lost in the operation, and only two vessels required ligature. She was carried to bed much exhausted, her pulse being scarcely perceptible, and placed in such a position on her side as made the opening depending. Some hot brandy-and-water and two grains of opium were given immediately. In a few hours a large quantity of fecal matter passed from the anus in the loin, which gave her great relief. The opium was repeated, and under this treatment, with support, she recovered favorably from the operation, and gradually regained strength sufficient to enable her to get up and walk about the ward. The wound healed, and the inconvenient escape of gas and feculent matter was prevented by means of a hollow pad and elastic bandage, constructed by Mr. Bourjeaud. The opening in the colon evinced no disposition to contract, and the motions escaped easily. She continued, however, to suffer from pains in the sacrum, and, after some weeks, her health evidently appeared to be giving way. At her own wish, she left the hospital on the 9th of April, and returned home, where she lingered until the 20th, when she died, having survived the operation nearly two months. No autopsy was allowed.

CASE 2.—Mr. S—, a stout man, a tradesman, æt. 40, of a pale, sallow complexion, consulted me, at the recommendation of Dr. Munk, in December, 1855, on account of disease of the lower bowel. It appeared that he had been subject for some months to bleeding from the rectum, and to occasional constipation, and that he had latterly lost flesh considerably. Slight bleeding was first noticed upwards of a year before, but it had increased a good deal within the last

few months. On examination, I found a carcinomatous stricture an inch and a half from the anus, the coats of the bowel being much thickened and extensively diseased. I painted the diseased surface with a solution of nitrate of silver, and prescribed astringent injections and cod-liver oil, with a nourishing diet. Under this treatment the bleeding ceased, and he improved somewhat in strength. I saw him occasionally during many months, chiefly in consequence of increasing difficulty in relieving the bowels, and of pains referred to the sacrum. The latter were relieved by morphia, and opiate and belladonna plasters to the sacrum. I found that the carcinomatous growths were filling up the rectum and extending downwards; and when I visited him in the beginning of September, 1856, there were growths projecting at the anus. The passage was so contracted that I could not pass the tip of my little finger into it, and no motions passed but in a liquid form, and after laxative medicine, and there was a slimy discharge tinged with blood. His strength, however, had not suffered materially.

Sept. 26th.—I was summoned to visit Mr. S.—in consequence of inability to relieve the bowels. There had been no motion for eight days. He had taken castor oil, senna, Epsom salts, and purgative pills, and, though not suffering any particular inconvenience from constipation, he was getting alarmed, and afraid to take food. His abdomen was soft, and not much distended. His tongue was clean, and he had a tolerable appetite. I attempted to pass a small elastic tube, but could not get it further than two inches, and the water injected all returned. During the last twenty-four hours his urine had been tinged pretty deeply with blood, and he had experienced some pain in the penis—symptoms which indicated the extension of the carcinomatous disease to the urinary passages. Finding the development of carcinomatous matter so great, and the obstruction so complete, I felt it my duty to suggest the operation for artificial anus. I fairly represented to my patient that the operation was not free from danger, and that if he recovered from it he could expect only a short prolongation of life, and that not without suffering. The symptoms not being urgent, I did not press for an immediate decision. All aperient medicines were forbidden, and as much food was to be taken as the stomach would bear. On visiting him the following day, I found him anxious, but in no respect worse. He had taken more food and a little wine. There was no tension of the abdomen; but no feculent matter had passed, and his urine was still tinged with blood. He gave his consent to the operation, which I performed the following day (the tenth day of obstruction), assisted by Mr. N. Ward.

28th.—The patient had continued to take food, and was much the same as the day before. When he was placed in a convenient position, with a pillow beneath the abdomen, the left loin was not particularly prominent. Chloroform was given, and the incisions were made as in the preceding operation, but of greater size, as the patient was a muscular subject. Having divided the layers of muscle, and the deep fascia, I separated some considerable masses of fat at the bottom of a deep wound, and sought for the posterior part of the colon. This was not found without much search, and the division of the outer edge of the erector spinæ muscle. Having drawn the bowel to the outer wound, I made a free longitudinal opening into it, and secured the edges to the margin of the wound in the integuments with four sutures. The operation was difficult and tedious, and during the time it occupied the patient was kept under the influence of chloroform. Very little blood was lost; but four vessels required to be tied. An opiate was given shortly after the operation, and in the evening he was calm and free from pain. There had been only two small evacuations from the wound.

29th.—The patient had slept little, and had lost all appetite. No feces had passed, but there was no tenderness in the abdomen, or in the wound. In the evening he was much troubled with nausea and occasional vomiting.

On the 30th, learning that no feces escaped, I passed my finger into the ascending colon, which I found loaded with soft feculent matter. He had taken very little nourishment since the operation, and his pulse was weak. The bowels were well relieved next day by a mild aperient draught, but the irritability of the stomach continued to distress him, and he took scarcely any

food. Effervescing ammonia draughts, ice to suck, brandy, hydrocyanic acid, chloric ether, counter-irritation over the stomach, all failed in quieting the organ. He gradually grew weaker and more emaciated, and on the 6th of October, the eighth day after the operation, some bleeding took place from the wound. He lost between three and four ounces of blood before assistance could be had, but the hemorrhage was readily stopped by a little pressure. The bleeding, which occurred with the urine, soon ceased after the operation, but nearly all his water passed by the anus, rendering him constantly wet and uncomfortable. His stomach at length became quieter, but he still took scarcely any nourishment, and no animal food. The evacuations took place readily, and without pain; but the wound made no progress in healing. He got weaker from day to day, and died on the 13th, having survived the operation fifteen days. Permission to make an autopsy was refused.

In both these operations I was disappointed in not finding the colon distended, a condition which greatly assists the surgeon in his endeavors to open the bowel without injury to the peritoneum. In the first case, after a month's obstruction at the rectum, not only was the colon contracted, but it was actually compressed against the spine, and put out of the way by the distended small intestines, so that it was really impossible to reach the bowel without opening the peritoneum. No inflammation or unfavorable symptom resulted, which must be attributed in a great measure to the free use of opium, coupled with good nourishment and support. In the second case, the operation was resorted to on the tenth day of obstruction, and the patient had been able to take food so well that a loaded colon might have been fairly looked for. The bowel was not indeed compressed and displaced, as in the first case, but it was not distended sufficiently to facilitate the operation; and the patient being a stout man, I found it no easy task to reach the colon, and to open it behind the peritoneum. These difficulties are mentioned, not with the view of disparaging the lumbar operation, but to invite attention to obstacles which may arise in its performance. My own opinion leans favorably to this operation, in preference to the inguinal, in cases of obstruction from disease of the rectum. In a spare subject, with the colon moderately distended, the operation is not very difficult, nor one attended with any great risk to life; and after the wound has healed around the opening of the bowel, some such contrivance as that used in the first case will greatly obviate the inconveniences of the anus in the loin. Even if the peritoneum be wounded, it may be questioned whether, under judicious treatment, the dangers of the operation are much increased thereby. In the second case, the operation can scarcely be said to have prolonged life, for without it the patient, by careful management, would probably have lasted as long. The prime object of the operation was accomplished in enabling him to relieve his bowels freely; and I attribute the unfortunate result chiefly to the unfavorable influence of chloroform in this instance. That chloroform does occasionally give rise to an irritable state of the stomach, of some duration, is well known. Mr. S—— inhaled an unusually large quantity of it, and was kept under its influence nearly three-quarters of an hour, in consequence of the difficulties of the operation. He was well able to take food previously, but afterwards lost all appetite, and became troubled with nausea and vomiting, which lasted some days, even after the bowels had been well relieved. The inability to take nourishment, especially animal food, was the chief cause of his sinking; for no peritonitis ensued, and the wound assumed no unfavorable condition until his powers became reduced by want of nutrition.

ART. 103.—On Abdominal Subcutaneous Emphysema. By Dr. O'FERRALL.

(*Dublin Hospital Gazette*, March 1, 1854.)

Emphysema has been described with great accuracy by Hunter, Bell, and others; but the emphysema of authors is that produced by escape into the cellular tissue of atmospheric air modified by the products of respiration. As hitherto observed, it is generally confined to the parietes of the chest and the neighboring regions of the neck, although its extension to other parts of the body is verified by the records of surgery. The emphysema, however, which

originates in inflation from the intestinal canal, and most generally occupies the abdominal regions alone, and in this place gives rise to a swelling likely to be confounded with disease of the abdominal cavity, is now, we believe, for the first time described.

"Abdominal subcutaneous emphysema," says Dr. O'Ferrall, in a clinical lecture delivered at St. Vincent's Hospital four years ago, "is rapid in its formation, and distressing in its effects; and the sufferer will be impatient if any hesitation as to its nature be displayed. I trust, therefore, that the short description which I shall now give you may be sufficient to enable you to recognize this remarkable lesion, when presented for your opinion.

"It is, as I have said, rapid in its formation, and the practitioner may receive an early summons to see a tumor as large and as tense as a dropsy; and he may be told that at bedtime, the previous evening, no trace whatever of this condition had been observed. The tumor or swelling may, on inspection, be found to occupy the whole area of the abdominal parietes, as well vertically as in the transverse direction. It may be colorless, or, indeed, even remarkably pale. The skin is smooth, even shining and tense. On manipulation, this tension is found to differ materially from that arising from liquid effusion into the peritoneum, or that of an ovarian or other cyst. The integument is tense, but not resisting. The least and lightest pressure of the finger displaces it, but it instantly returns and leaves no pit or trace behind. There may, over the whole anterior middle portion of the abdomen, be no crepitation to mark its real nature, and, as yet you may have only a suspicion arising from the difference between the sensation then conveyed, and that with which experience had rendered you familiar, in cystic or other liquid accumulations. A light and springy percussion now elicits an unequivocal tympany, but short and faint, and, indeed, unlike any you ever heard before. Still it is tympany, however faintly marked. You now trace the swelling laterally towards either loin, and here a distinct crepitation is detected. It is similar, in all respects, to that which is met with over the neck and chest in cases where, from any cause, an abnormal communication is established between the air-passages and the general areolar tissue. This crepitation may, perhaps, be detected also towards the inguinal regions, but is generally absent in the middle portion of the swelling. In the course of this examination, which is rapidly accomplished, you may now discover some blush in the integument, and further on a redness of greater or less intensity, and generally of a dusky hue. You are now approaching the real seat and source of the disease. The seat of this discoloration is different in different instances; but we shall suppose that, on approaching the sacral or gluteal regions, you find the discoloration most remarkable, and that here the parts beneath the skin have that peculiar feel to which the term 'boggy' has been applied. What history shall you be likely to receive, on inquiry into the case? If the patient has not had competent advice, and has not been made acquainted with the nature of his malady, you will be told that for a long time, perhaps years, there has been constipation, pain in defecation, occasional hemorrhage, mucous or puriform discharges, and that he has suffered, as he believes, from aggravated piles. You proceed to examine the rectum, and you discover some one of the various forms of organic disease of that part, diminishing and obstructing its calibre, and producing that state, which an imperfect and superficial pathology has often described, under the name of stricture, as the essential disease. The emaciated condition of the patient is in accordance with the result of this investigation, and you have now a solution of the problem. There has been, in fact, perforation of the coats of the bowel. The natural attempt to limit, by what has been called adhesive inflammation, the depot thus formed, has failed; or some impulse or disturbance has broken through its lining of lymph, and the cellular tissue has become injected with the gaseous contents of the intestine. If the case has been in competent hands, you will be made acquainted with the fact, that disease of the rectum has been recognized, although the present accident may not have been anticipated.

"That which I have now described is one source of *emphysematous* tumor of the abdomen. The case lately in Mary's Ward is still in your recollection, and you will remember the rapidity with which, in that case, the abdominal swelling was produced.

"But suppose the gluteal and sacral regions afford no marks of local disease, you may, perhaps, discover indications of mischief, as the fingers approach either groin, and here, or just below Poupart's ligament, you may encounter, first, the crepitation; next, the 'boggy' feel; and then you may perceive the dusky discoloration before alluded to. The history belonging to such cases as this will differ materially from that which I have related, as connected with the former example. You may be told that an elastic swelling of long standing, and which occasionally disappeared altogether, has latterly become permanent and firmer in consistence than before. That vomiting, and constipation, and pain, have suddenly appeared, and existed for a few days, and that, with or without medical aid, the bowels have become free, and the vomiting has ceased, while the swelling continued to enlarge and to acquire a red and congested hue. Now, what is this case? It is most probably a knuckle of intestine adherent to the mouth of a hernial sac, and having a perforation or sloughy opening, through which feculent matter has escaped into the sac, and failing to be bounded by plastic inflammation, or from sloughing of the whole sac itself, has been injected with its fetid gases into the cellular tissue. An illustration of this form occurred in Joseph's Ward, about two years ago, and created a considerable degree of interest at the time.

"Having traced the lesion to the neighborhood of the groin, you are not to conclude hastily that a hernial tumor is its source; and if the *right* inguinal region be the locality, there is more occasion for reserve on this point. The history may suggest another and very different organic change as the source of the emphysema. You may learn that a firm and painful swelling has been felt in the abdomen, at the lower part of its right side, and just inside of the hip-bone. That constipation, or great irregularity of bowels, had been complained of, and had been succeeded by sickness or vomiting, with chills or rigors, and of fever more or less strongly marked. That the integuments about the groin had become red and painful, and that extension of the limb occasioned considerable suffering. You may, in fine, have the history of *phlegmonous tumor in the right iliac fossa, or ileo-cæcal abscess*. On examination, you may detect, in addition to the boggy swelling, a gurgling which is transmitted, by pressure, upwards in the direction of the ascending colon. In this, as in the former cases, the lesion evidently consists in the escape of the gaseous contents of the intestine into the areolar tissue.

"It is surprising how rapidly the cellular web becomes injected by this poisonous element. A few hours may suffice to develop a swelling extending all over the front of the abdomen.

"The crepitation which is so characteristic of emphysema is, as I have said, not always to be detected in the most prominent portions of the swelling. This would appear to arise from the over-distension of the cellular plates, which very soon lose their vitality, and fall into a sloughy state. In one case I had an opportunity of inspecting the parts which had been destroyed by contact with the deleterious agent; and when incisions are made into such parts, the nature of the change is equally apparent.

"The extent to which the abdominal parietes may be occupied by this peculiar swelling will not be the same in all cases, and will depend on its duration. If you are not consulted for twelve or eighteen hours after its commencement, the swelling may then have engaged the entire area of the abdominal surface, and have assumed the smooth, tense, hemispherical prominence alluded to. At an earlier period of its progress it will occupy a less extensive surface, and one-half, perhaps, of the abdomen will exhibit this peculiar swollen condition. I have also seen it present a distinct swelling at each side of the external margins of the recti muscles, the connection between those two portions being established by a transverse projection across the hypogastric region. In the case where the swelling occupies the whole anterior surface, the appearance of the abdomen might, to a hasty view, suggest the idea of a cavity tense with liquid effusion.

"The practised observer will, however, even here, remark that the umbilicus is depressed and buried in the middle of the swelling, and he will contrast this appearance with that which is displayed in dropsy. In the one case the umbilicus is sunken and concealed; in the other case the umbilicus projects, and may be even distended by the liquid within.

"It is, notwithstanding, by the careful exercise of the finger, that the diagnosis is to be established. It is to the diagnosis alone that I now wish to direct your attention. The treatment, as well as a history of its results, will form the subject of another inquiry.

"Abdominal cutaneous emphysema is, no doubt, a rare accident in those diseases, in the course of which it is liable to occur. Malignant disease of the rectum may pass through all its stages without perforation of the intestine; and when perforation takes place, it is, in the majority of instances, limited by plastic deposit, and thus the fetid abscess is conducted to the surface by routes which vary in different cases. The contents of the sloughing hernia may reach the surface in a similar way, and an artificial anus be the result. The ileo-caecal abscess may, in like manner, be uncomplicated with this lesion. The resonance and the gurgling which I have, on a former occasion, described as characteristic of some forms of this abscess, are entirely different from the diffused and huge emphysematous swelling to which I now refer.

"But rare as it undoubtedly is, it has been frequently witnessed in this hospital, and you should be prepared to recognize it when suddenly presented to your notice."

ART. 104.—*Ligature of the External Iliac for Femoral Aneurism.*

By Dr. WOOD.

(*New York Journal of Medicine*, May, 1857.)

In this paper Dr. Wood relates a case in which he performed this operation, and he brings together the cases in which the operation had been already performed, with a view of exhibiting the chances of secondary hemorrhage.

In Dr. Wood's case the pulsation in the posterior tibial artery was absent until the seventh day after the operation.

On the thirteenth, the ligature from the external iliac was removed.

On the eighteenth, secondary hemorrhage supervened; five days after the ligature came away.

Pressure by the hand was kept up twelve days—from the eighteenth to the thirtieth day—after the operation. The shot, bandage, and compress were then substituted.

On the twenty-eighth day after the operation, and tenth after the hemorrhage, pulsation of the external iliac artery entirely disappeared. On the thirty-eighth, part of the shot were removed; the remainder, with a compress and bandage, applied as before.

On the sixty-fifth day after the operation, and forty-seventh after the hemorrhage, all the dressings were removed, and the patient discharged cured.

The following collection of cases exhibits the dangers of secondary hemorrhage, complicating ligature of the external iliac:—

Cases of secondary hemorrhage after ligature of the external iliac:—

Operator.	Ligature separated.	Date of Hemorrhage.	Treatment.	Result.
Abernethy.	...	5th day.	...	Died.
Mouland.	24th day.	...	...	Cured.
Dupuytren.	16th day.	24th day.	Pressure.	Cured.
Todd.	21st day.	24th day.	Lig. reapplied.	Died.
B. Cooper.	...	19th day.	...	Died.
Hewson.	29th day.	6th day.	Pressure.	Cured.
Lallemand.	...	5th day.	...	Died.
Baroni.	19th day.	40th day.	Laid open tumor.	Died.
Power.	...	5th day.	...	Died.
A. Cooper.	...	17th day.	...	Died.
Adams.	28th day.	18th day.	Pressure.	Died.
Smith.	7th day.	...	Pressure.	Died.
Ogden.	...	8th day.	...	Died.
Wood.	13th day.	18th day.	Pressure.	Cured.

Summary.—Number of cases, 14; recovered, 4; died, 10.

ART. 105.—*On the Use of Tincture of Aconite as a Preventive of Rigor after passing a catheter into the urethra.* By Mr. LONG, Surgeon to the Liverpool Royal Infirmary.

(*Liverpool Med.-Chir. Review*, Jan., 1858.)

"I had recently under my care at the infirmary," says Mr. Long, "at the same time, three cases of irritable and almost impermeable stricture of the urethra; in all of which it was impossible to make any progress by dilatation, in consequence of the severe rigors which ensued after each attempt to pass the catheter. Finding that the ordinary appliances did not prevent the occurrence of the rigors, and that the introduction of the instrument could not be attempted oftener than three or four times in a fortnight, in consequence of the severe local and constitutional irritation which followed its use, I adopted the following plan: I gave two minims of Fleming's tincture of aconite, in an ounce of water, immediately after the introduction of the instrument. The result was as follows: In one case the tincture was given without any omission, after every introduction of the instrument: no rigors occurred, and the treatment progressed without any interruption to a successful termination. In the second, the same result occurred. On one occasion the tincture was omitted, as an experiment, and a rigor occurred, followed by its usual consequences. The tincture was resumed, and no rigor again occurred, though the instrument was allowed to remain in the stricture for half an hour or longer. This case also did well, but the man left the infirmary before the dilatation was fully completed.

"In the third case, which was the most severe, no rigor occurred whilst the tincture was given, and the case was progressing favorably. The aconite was, as in the second case, omitted, for the sake of experiment, and two introductions of the instrument were effected without the recurrence of rigor. On the third occasion, however, so severe a rigor, and such untoward local and constitutional symptoms experienced, that up to the present moment no further use of the instrument could be attempted. I conclude that in the above cases, the tincture of aconite, by its direct sedative power, exerted a powerful influence in preventing the occurrence of rigors, and that in similar cases it may become a valuable addition to the means usually employed."

ART. 106.—*On the Treatment of Excessive Involuntary Seminal Emissions.* By Mr. SOLLY, F.R.S., Surgeon to St. Thomas's Hospital.

(*Lancet*, Feb. 6, 1858.)

"It is now," says Mr. Solly, "some years since Lallemand first recommended the use of this caustic to correct the distressing drain on the system which results from these discharges. I am convinced the great value of this plan has not received that attention from the profession which it deserves, while the quacks have availed themselves of it, abused it, and converted, by its indiscriminate and intemperate use, a valuable remedy into a curse.

"Every now and then I see patients from the country who tell me that their medical attendants decline to use it; and I know that some of the heads of the profession are opposed to it. As, however, during the last three years, I have found it almost invariably successful, I think it right to make this statement.

"Most of these cases are the consequence of evil habits engendered at school. Much has lately been written, and much is being honestly attempted, in order to abate the frightful evils of prostitution; but bad as are the evils which arise from that source, they are nothing in comparison with those arising from masturbation—a crime which is ignored by the public, the profession, and by too many of the scholastic order. It is a dreadful social evil, and the punishment which follows in its train, unlike the marked and self-evident retribution from illicit intercourse, proceeds so slowly that its victims are bound hand and foot before the medical man is called in to prescribe for its consequences. Epilepsy and insanity are amongst the most prominent of its effects. But I must not now be led away into particulars, though I do conjure the profession not to ignore the existence of disease as the result of masturbation, and thus

drive its votaries into the hands of quacks. They are amenable to treatment, and the surgeon will be rewarded for his trouble.

"As a rule, I first pass a steel sound, and after the urethra becomes less irritable and sensitive, I apply the caustic; in the use of which I make no claim for originality. I employ the caustic-holding catheter of Lallemand, and having passed in over the *veru montanum* into the bladder, I draw it back again; and on reaching the *veru montanum*, unsheath the nitrate of silver over the opening of the ejaculatory tubes, quickly sheath it again, and withdraw it from the penis. Its application in this way does not produce much pain, not usually so much as the first introduction of the steel sound; for, in all these cases, the urethra is exquisitely sensitive, and the *veru montanum* swollen.

"In those cases where the nocturnal emissions simply occur too frequently, and the evil habit which induced them has been abandoned without the occurrence of epilepsy or mental derangement, perseverance in the use of this caustic, applied once or twice a week, according to the irritability of the patient, and continued according to the subsidence of the seminal emissions, from one to two months, with such tonics as the sulphate of iron, quinine, and zinc, will, as far as my own experience goes, effect a cure. This assertion applies even to cases where the testicles have shrunk to little more than the thickness of a penny-piece, and the varicose veins of the cord resemble a bag of worms.

"On a subject like this I must not detail individual cases; but I do assert, most positively, that the above description is no exaggeration of the physical changes which take place in the organs of generation, and that such cases are not incurable."

ART. 107.—*On the Causes of Death after Lithotomy.*
By MR. BRYANT, Assistant-Surgeon to Guy's Hospital.

(*Guy's Hospital Reports*, Third Series, vol. iii., 1857.)

This paper is based upon 176 cases of lithotomy taken from the clinical records of Guy's Hospital, and upon 40 post-mortem examinations, of which 25, or 14.20 per cent., occurred in the 176 cases already mentioned. The conclusions are—

1. That lithotomy is at least twice as fatal during the first five years of life as it is during the second.

2. That during puberty, or between 11 and 20 years of age (the third period), it is more fatal than during any other period.

3. That after 20 and up to 40 years of age it is comparatively of small fatality.

4. That 30 per cent. of the fatal cases are during the first 20 years of life.

5. That 10 per cent. are during the second 20 years of life.

6. That 60 per cent. are above 40 years of age.

7. That 14.20 per cent. of the cases operated upon prove fatal.

8. That hemorrhage is the cause of death in the proportion of 15 per cent.

9. That 12.5 per cent. of the fatal cases died from exhaustion, or simple sinking; and that these are generally above the middle period of life.

10. That pyelitis or inflammation of the kidney is the cause of death in 15 per cent.

11. That pelvic cellulitis is the cause of death in 15 per cent.

12. That this pelvic cellulitis is not generally the result of a too extensive incision through the prostate, but as the result of continuity of a structure which has become inflamed from the necessary injury inflicted upon it by the operation, or by the presence of a calculus.

13. That the combined influence of pyelitis and pelvic cellulitis prove fatal in 15 per cent.

14. That 12.5 per cent. die from pyæmia.

15. That pelvic cellulitis, the result of accidental causes during the operation, may prove fatal in 7.5 per cent.

16 That disease of the kidney is found in at least 30 per cent. of the fatal cases.

17. That pelvic cellulitis is found at least in 37 per cent. of the fatal cases, either alone or associated with other disease.

18. That peritonitis, as the result of lithotomy and cause of death, is never found unassociated with other complications, such as pelvic cellulitis or perforation of the bladder.

19. That acute cystitis may alone prove the cause of death.

20. That chloroform, independent of its own special risks, does not seem to have any influence upon the fatality of lithotomy.

ART. 108.—*On Lithotritic Instruments in cases of Enlarged Prostate.*

By Mr. COULSON, Surgeon to St. Mary's Hospital.

(*Lancet*, Jan. 30, 1858.)

In the following remarks Mr. Coulson proposes to explain the necessity which exists for employing a peculiar lithotrite in patients who have stone and enlargement of the prostate. It is now more than three years since this necessity was impressed upon him. He had a case of vesical calculus in a stout man, seventy years of age, whose prostate was enlarged; although the ordinary lithotrite was introduced without difficulty, he found it impossible to seize the stone, in consequence of the lithotrite being too short. The operation was deferred until a new instrument was made. Since the period just mentioned, four similar cases have occurred in his practice. In each case the patient labored under enlargement of the prostate, and in each he would have been unable to terminate the operation without the use of the instrument which he describes in this paper.

"The changes in the genito-urinary organs produced by enlargement of the prostate, and requiring the use of peculiar lithotritic instruments, may be explained in a few words. Many men who have passed the middle period of life labor under some enlargement of the prostate; and such a condition of the gland seriously interferes with the functions of the bladder; but for my present purpose it will suffice to consider the effects produced on the urethra and floor of the bladder by any considerable swelling of the prostate. A consideration of these effects will at once show in what manner the modified instruments that I employ in such cases are, of necessity, required. A constant effect of prostatic enlargement is elongation of the urethra. This lengthening of the canal may be connected with several conditions of the enlarged gland; it is, however, mainly confined to the prostatic portion of the urethra, and occurs in one of two ways. As the enlargement pushes up the neck of the bladder under the arch of the pubes, it necessarily draws up and elongates the vesical end of the urethra; or, while the gland is slowly enlarging from before backwards, that portion of the urethra which traverses it must necessarily follow the abnormal development of the prostate, and become elongated. In his recent work on the 'Prostate,' Mr. Thompson observes, 'that in some preparations which he examined, the urethra measured three inches from the orifice of the bladder to the membranous portion, instead of an inch and a half, which is the normal length.' In all cases of this kind, more especially when the middle lobe is chiefly affected, the orifice of the bladder is thrown backwards in proportion to the development of the enlarged lobe; and hence the point of any instrument used is apt to catch against the superior wall of the canal before it enters the bladder. This is an obstacle which the surgeon is very likely to meet with; and I may add, the shorter the instrument he employs, the more likely is the obstacle to occur.

"The effects of the morbid growth on the cavity of the bladder also require some notice. These effects, so far as regards my present subject, will depend on the degree of prostatic enlargement, and on the lobe principally affected. When the enlargement is chiefly confined to the middle lobe of the prostate, which encroaches on the floor of the bladder, the capacity of that viscus at its lower part is proportionably diminished. I have seen a considerable part of the bladder occupied by the enlarged prostate; and, in extreme cases, preparations of which are preserved in our museums, the morbidly developed gland

has occupied a great portion of the vesical cavity. In all the cases now alluded to, the effect of this extension of the middle lobe of the prostate backwards is to form a reservoir or sac behind the enlarged gland. The floor of the bladder is here greatly depressed; the urine remains as in a sac; and here a calculus may be lodged, the detection of which is often extremely difficult. I have, at the present time, under treatment, a patient who has a stone concealed behind an enlarged prostate, the existence of which had escaped the notice of those surgeons by whom he had been previously examined.

"The necessity of employing special sounds and catheters in cases of enlarged prostate is well known to all practitioners. The increased length of the urethra, and the encroachment of the enlarged lobe on the floor of the bladder, compel the surgeon to use a much longer catheter than usual. In prostatic enlargement the ordinary catheter will not penetrate into the bladder; and the experienced practitioner at once suspects the existence of the complaint from this circumstance. To enter the cavity of the bladder he takes a catheter from two to four inches longer than the one in ordinary use, and with an instrument of this kind he succeeds, after having passed it about twelve inches beyond the orifice of the urethra. The same holds good with regard to the sound. Thus the stem of the ordinary sound measures seven inches and a half; the stem of a moderately sized prostatic sound measures nine inches and a half. An ordinary catheter, now before me, measures nine inches and three-quarters to the point. A prostatic catheter measures thirteen inches and a half. From fourteen to sixteen inches is the length recommended in standard works.

"In cases of enlarged prostate, then, the surgeon requires a long catheter of peculiar shape to draw off the urine. For the same reason—viz., the increased length of the urethra, and the depression in the floor of the bladder—he will require a long lithotrite of peculiar shape, in order to catch and crush the stone with ease to himself and safety to his patient.

"If the long prostatic catheter be expedient, the long prostatic lithotrite is, *à fortiori*, indispensable. The necessity of employing a longer instrument than usual in such cases will, I imagine, be generally admitted; and if I insist on it here, it is because our standard works do not allude to the point—an omission of which I have been no less guilty than others, and which I would now repair. The ordinary lithotrite of Charrière measures ten inches from the root of the stem to the eye; the chord of the curve, from the eye to the point, is one inch and three-eighths. The long lithotrite, manufactured expressly for me by Charrière, measures twelve inches in the stem, and one inch and three-eighths in the curve. The stem of Weiss's ordinary lithotrite measures nine inches; the stem of the long instrument which he has made for me measures ten inches and a half; the beak is the same length in both, about an inch and a half.

"I need hardly occupy much space in dwelling on the necessity of the surgeon being provided with a long instrument of this kind, and of the many advantages which he will derive from its use. I can only say that I have had cases which, I feel convinced, I could never have conducted to a successful termination without it. It should be remembered that, with an elongated urethra, the distance between the external and internal orifices of the canal is increased by at least an inch. The enlarged prostate, again, occupies the front part of the floor of the bladder, on which it encroaches another inch or more. The calculus lies concealed in a sort of pouch behind the enlarged lobe, which rises like a barrier before it. Under these circumstances, it is evident that the surgeon will require an instrument longer than that in ordinary use by two or three inches; the common lithotrite will either not pass into the cavity of the bladder, or, if it does, after having been forced up to the handle, the motion of its curved part will still be greatly impeded by the prostate.

"In some of my cases the common instruments were not sufficiently long, and it became necessary to push them up to the shoulder before I could turn the point in the necessary direction. With the long lithotrite, on the other hand, the surgeon gets readily into the bladder; but to overcome the impediments likely to arise from an enlarged middle lobe, a peculiarly formed beak is necessary, and the pelvis must be raised.

"The beak or curved part of the lithotrite must be short, and the curve sharp. With an instrument of this kind the surgeon will often be able to 'fish up the stone from the depression behind the enlarged prostate,' in the manner described in the last edition of my work on the 'Bladder.' By turning the point down, and elevating the handle of the instrument, the stone will commonly be found in the position already mentioned. When the middle lobe of the prostate is much enlarged, and extends some way into the bladder, the point of the instrument cannot be turned downwards in such a way as to reach the stone. The plan from which I have derived most benefit in such cases is that of raising the pelvis of the patient in such a way that the calculus shall be displaced towards the posterior wall of the bladder. Especial care must be taken that the pelvis itself is raised, and not merely the lower extremities. By adopting this plan, I have, on several occasions, immediately caught the calculi, which lay concealed behind the prostate as long as the patient retained the ordinary position. Every lithotrity couch should be provided with some mechanical contrivance for executing this proceeding quickly. The sufferings occasioned by the attempt to seize a stone behind an enlarged prostate, in the ordinary way, and after strong elevation of the handle, are often of the most distressing kind, and cannot certainly contribute to the well-doing of the patient. On the other hand, the ease with which the reversed beak falls on the stone is remarkable; but the manipulation requires a cautious and practised hand."

ART. 109.—*A New Operation for Hydrocele.*

By M. CARRON DU VILLARDS.

(*Mon. des Hôp.*, No. 128, 1857; and *Medico-Chir. Review*, April, 1858.)

M. Carron du Villards, a French practitioner in the Antilles, has devised a modification of Larrey's operation for hydrocele, in consequence of the bad effects which result from injection in that part of the world. The accidents produced by it are tetanus, acute hematocele, suppuration, acute orchitis, easily passing into the condition of induration, gangrene, and, when only weak injections are employed, relapse. The author has himself never met with this consecutive tetanus, but practitioners settled at Cuba have assured him that it is of frequent occurrence there. He has, however, met with a great number of cases of hematocele consequent on injection, either with or without organic transformation of the tunica vaginalis. So frequent are these accidents, that a great number of persons repair to the United States for the purpose of having the injection performed. In such bad repute it is among the creole population and practitioners, that they content themselves with repeated palliative punctures by means of a lancet, the frequent repetition of which almost always leads to the degeneration of the tissues of the scrotum described by Larrey. The author has very frequently met with this form of elephantiasis of the scrotum in the Antilles, where it is known as the Barbadoes disease.

The operation which he has devised in lieu of injection, has now been performed by himself in 50 cases, producing 48 radical cures, and only 2 failures; and subsequently to the presentation of the memoir, M. Camilleri and others have operated 187 times, with but 7 relapses. It is attended with no accidents and but little pain, is adapted for all the complications and varieties of hydrocele, is of easy execution, and requires little confinement or after-treatment. The patient is placed on a high bed, with his buttocks well raised by means of a cushion, and the situation of the testis having been recognized, the operator, taking the lower part of the hydrocele in his hand, while an assistant presses it downwards, punctures the most dependent part of the tumor with a strong and narrow lancet, which he passes slowly in. As soon as the fluid escapes, he slides a long narrow trocar along the blade of the lancet, keeping the point of the instrument within the canula until the upper boundary of the tumor is reached. Having reached this point, the canula is pressed against the tissues, so as to project them somewhat externally, in order to be certain that neither the cord nor a pulsating vessel can be felt in front of it. A piece of cork is next placed against the projected tissues, and against this the trocar is forcibly

driven by the application of the palm of the hand to the handle of the instrument. A counter-opening is thus at once effected, just as the jewellers pierce the ears for ear-rings. The stiletto of the trocar is now withdrawn, and replaced by a grooved silver wire, which traverses the two apertures, and is left *in situ* on the removal of the canula. Spirit lotions are applied around the scrotum, and during twenty-four hours a slight discharge of fluid takes place. After this period inflammation is set up, and the secretion is no more reproduced. The scrotum becomes afterwards red, hard, and painful, as in acute orchitis, but it rarely requires treatment. More frequently it has been found necessary to encourage action by placing stimulant ointments in the groove of the wire. On the twelfth day (the patient being usually able to get up by the third) the wire is removed, the patient wearing a suspensory until the twenty-fifth or thirtieth day, by which time he is usually radically cured.

(C) CONCERNING THE UPPER EXTREMITY.

ART. 110.—*Case of Simultaneous Dislocation of both Shoulder-joints.* By Dr. W. H. VAN BUREN. Surgeon to the New York Hospital, &c.

(*New York Journal of Medicine*, Nov., 1857.)

CASE.—William Coy, a well-built, middle-aged man, was brought to the New York Hospital on April 21st, 1857. It was learned from his friends that he had fallen headlong down a flight of steps in a house in Pearl Street. He was perfectly insensible, with widely dilated and immovable pupils; pulse 84, rather full and soft; skin cool; respiration hurried and labored, and at each expiration bright arterial blood issued from nostrils and mouth, in small quantity; no bleeding from the ears. He sank rapidly, and died five hours after admission.

On examination of the body thirteen hours and a half after death, extravasated blood was found beneath the scalp over the left parietal bone and in the temporal fossa of the same side, and a fissure commencing about the centre of the parietal bone and tending obliquely downward and forward to the base of the skull. On removing the calvarium, a large amount of fluid blood was found between the dura mater and bone, covering the surface corresponding to both hemispheres of the brain. The brain proper was apparently uninjured, but an extensive laceration occupied the substance of the right hemisphere of the cerebellum. After removal of the brain, the fracture was found to extend through the petrous portion of the left temporal, and across the body of the sphenoid bones; splitting off the sella turcica completely.

Both shoulders were observed to present the usual physiognomy of dislocation into the axilla, and distinct crepitus could be felt on both sides when the humeri were rotated. On dissection of the right shoulder, the head of the humerus was found in the subscapular fossa, lying between the surface of the bone and subscapular muscle, which had been lacerated and torn up from its attachments to make a bed for it. Its exact position was about one inch and a half below, and one inch nearer the median line of the body than the base of the coracoid process. The greater tuberosity of the humerus was broken off, and retained in its normal relation to the glenoid cavity of the scapula by the capsular ligament and the muscles to which it gives attachment. The capsular ligament, extensively lacerated in front and on its inner aspect, presented an elongated shred stretching from the upper margin of the glenoid cavity downward and inward to the dislocated head of the humerus, to which it was still attached. The long tendon of the biceps was found occupying its normal relation to the greater tuberosity, having been dragged out of the bicipital groove, which was empty. The coracoid process of the scapula was fractured through its base, and dragged forward and downward by the action of the coraco-brachialis muscle and the short head of the biceps.

On dissection of the left shoulder, a condition of parts was found similar to that described as existing upon the right side, with the following exceptions: the head of the humerus was displaced more directly downward, resting upon the anterior margin of the lower border of the scapula, just below the glenoid

cavity; the capsular ligament was lacerated on its inner aspect, and less extensively; and the coracoid process was uninjured. The greater tuberosity, however, was fractured off almost exactly in the same manner as on the right side, and retained its natural position in relation to the glenoid cavity, and the long tendon of the biceps.

Apart from its rarity as an example of simultaneous luxation of both humeri, the case just related is remarkable from the similarity of the fracture of the greater tuberosity of the humerus on both sides. The detached fragments were circular in outline, little more than an inch in diameter, and each represented the section of a sphere in its shape, comprising, in fact, little more than the outer shell or cortical layer of the humerus, into which the supra-spinatus, infra-spinatus, and teres-minor muscles are inserted; and they were evidently torn off by the sudden and violent action of these muscles.

This complication of dislocation of the shoulder, with tearing off of the greater tuberosity of the humerus, if we are to credit Malgaigne, occurs much more frequently than is generally supposed, and its presence explains, according to this surgeon, the sensation of crepitus which Velpeau asserts is so often felt in cases of luxation when the shoulder is firmly grasped by the left hand, and the dislocated limb rotated forcibly by the right. Malgaigne also asserts that this lesion is accompanied by the appearance of ecchymosis upon the inner side of the arm within a few days after the accident (*"Traité des Fractures et des Luxations,"* t. ii. p. 512). In two out of the six dissections, which he had made of cases of what he classifies as intra-coracoid luxations of the shoulder (according to him the most frequent variety), the greater tuberosity of the humerus was found torn off, and occupying the same position and relation to the glenoid cavity as in the case which I have described.

ART. 111.—*A new Splint for cases in which the Elbow-joint has been excised.* By MR. HEATH, Demonstrator of Anatomy in the Westminster Hospital.

(*Lancet*, Nov. 28, 1857.)

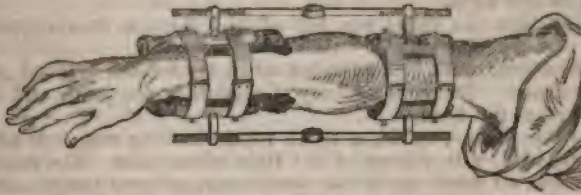
The three following cases, occurring in the practice of Mr. Fergusson, in King's College Hospital, and related by Mr. Swain, house-surgeon to the hospital, show how advantageously Mr. Heath's splint may be used in cases of this kind, in effecting passive motion after the process of healing is nearly completed. The instrument prevents the bones from coming into close contact, and permits of flexion and extension. It is now in general use in King's College Hospital.

CASE 1.—Margaret W—, æt. 21, admitted into No. 3 Ward, May 9th, 1857, with disease of the right elbow-joint. The patient is a native of Maidstone, where she had been in service; has never been very strong; and about twelve months ago had a glandular abscess in the neck, which is still open. About six months ago, without any previous injury, the right elbow began to swell, and became so painful that she was unable to move the joint. Fomentations and liniments were used without any relief. The joint became more tender; and in the month of April, an abscess burst a little below the external condyle of the humerus, where an ulcer still remains. The arm continuing swollen and immovable, she was advised to come to King's College Hospital. On admission: she is a pale, delicate-looking young woman. On the neck are the scars of some scrofulous ulcers; there is considerable enlargement of the right elbow; the arm is bent at a very oblique angle, and requires to be supported; there is some slight movement in the joint; the ulna can be pushed up against the humerus, and slightly moved from side to side. About two inches below the outer condyle of the humerus is a small ulcer, the size of a fourpenny piece, which discharges a serous-looking fluid; the skin covering the joint is red and shining. She complains of considerable pain in the joint, aggravated by movement.

May 13th. Mr. Fergusson detected fluctuation above the inner condyle, and made a puncture which gave exit to an ounce of pus.

16th.—The patient being placed under the influence of chloroform, Mr. Fergusson proceeded to excise the joint. He made a single longitudinal incision

at the back of the joint, about four inches in length, and then dissecting back the integuments on either side, he was enabled to remove the olecranon and articular surface of the ulna by means of a saw and cutting forceps. He then proceeded to remove about an inch of the end of the humerus with the saw, steadying the bone by the use of the lion forceps. The end of the radius was then removed, and the wound brought together with four sutures. Little bleeding occurred. In the evening, the elbow being extended, and the forearm placed in a position midway between pronation and supination, a bandage was placed above and below the wound, and a splint, contrived by Mr. Christopher Heath, the late house-surgeon, was applied, the principle of which it is to make extension between the cut surfaces of bone, it being possible at the same time to flex and extend the arm so as to lead to the formation of a movable joint. The accompanying engraving (from a photograph by Mr. Mason, of King's College Hospital) represents the apparatus as applied to the patient's arm. It consists of four iron plates (well padded) with projecting portions, each of which is perforated by a female screw. Two iron rods, with hinges in their centres, and a male screw at each extremity, work in the projecting eyes, and the screws at the two ends being cut in opposite directions, the hinge necessarily remains central, while the plates may be separated to any extent. The arm having been bandaged above and below the wound, the plates are attached firmly by means of straps and buckles (additional strips of plaster being used if necessary), when by turning the iron rods, the extremities of the bones are separated to the required distance, while by means of the hinges in the centres of the rods, motion can be made with the greatest facility.



By means of this splint, the arm was kept in position, and flexed daily. On the 23d the splint was readjusted, and the wound reported healthy.

On June 15th the patient is reported as being in much better health. The wound was granulating healthily, and she was beginning to obtain some power of flexion and extension. The splint was now entirely left off.

On August 5th the patient was discharged, with the wound quite healed, and possessing some little power over the limb.

A few days ago the patient presented herself at the hospital. Her general appearance was much improved, and she has now almost perfect power of flexion, extension, and rotation.

CASE 2.—Jane P—, *æt.* 14, a slight girl, with florid complexion, was admitted on the 16th of June, 1857, with disease of the left elbow-joint. When a month old, abscesses formed in the neck and both elbow-joints; that in the right subsided, and perfect motion was obtained after a short period; but the abscess in the left joint led to complete ankylosis. The joint remained in a quiescent state up to five years ago, when an abscess formed in its neighborhood; this, however, subsided, and she experienced no inconvenience until a month before admission, when another abscess formed on the inner side of the joint, which burst, and has continued to discharge ever since. The forearm is slightly flexed on the humerus; the elbow is perfectly locked, very tender, and slightly enlarged. Just over the internal condyle there is an ulcer about the size of a sixpence, through which a probe can be passed down to the bare bone. On the posterior surface of the joint, and on the outer side of the forearm, there are old cicatrices.

June 27th.—Dr. Snow having administered amylene, Mr. Fergusson proceeded to excise the joint. Having made a vertical incision about six inches

long at the back of the joint, he dissected back the integuments on either side, until the joint was fully exposed. During this dissection no ulnar nerve could be discovered. He then applied the saw to the olecranon at its junction with the shaft of the ulna, and having sawn through the bone in that position, the saw was again applied to the humerus just above the condyles, and the piece of bone intervening between the two cuts removed. At this stage of the proceedings a large quantity of pus spirted out with great force from the neighborhood of the joint. Some diseased tissues, implicated in the abscess, were then dissected off. No ligatures were required, and the edges of the wound were brought together by two stitches.

30th.—The patient having gone on very well during the intervening days, the arm was placed in Mr. Heath's splint (before described), and fixed once or twice upon the humerus. The bones were kept well apart from one another; but after a time the arm and hand became rather swollen, and

On July 3d the splint was taken off, and the arm placed on a straight splint.

On the 7th, Heath's splint was again applied and the arm now and then flexed, the extension caused by the splint much lessening the pain of that operation. The wound assumed a healthy appearance, and the patient was in a very satisfactory state.

On the 20th, the wound was reported as "looking very healthy," and at each dressing the arm was flexed and extended, not much pain being inflicted.

At the beginning of August the side splints were taken off, and a straight splint in front of the joint was substituted. The wound now scarcely discharged at all. The arm was flexed, extended, and rotated at each dressing. By the middle of the month the patient had regained some power of motion in the fingers and wrist.

On August 25th the splint was left off, and the arm was supported in a sling.

About the second week in September, when she left the hospital, the wound had almost closed. There was plenty of motion in the joint, and she could raise the hand to the head.

CASE 3.—Wm. R.—, æt. 26, a florid robust looking man, was admitted on August 19th, 1857, with disease of the right elbow-joint. The patient states that up to about six years ago he has always enjoyed good health. About that time he contracted syphilis, for which he was mercurialized. This was followed by an eruption, accompanied by pain in the limbs and joints, more especially the right elbow and knee. Shortly after he found that his right elbow was swollen and painful. This in about three months yielded to treatment, but he was never after able to place the limb in a perfectly straight position, nor could he flex it sufficiently to touch the shoulder without great pain. In May last he had a return of the pain and swelling in the joint. This continued unabated up to about five weeks ago, when an abscess formed in the joint.

On admission, the swelling was considerable about the elbow, and the contour of the joint entirely lost. The forearm was slightly flexed on the upper arm, and on pressing the forearm upwards a peculiarly elastic feeling was given.

Aug. 20th.—An incision was made midway between the condyles of the humerus, and a considerable amount of offensive matter discharged itself. A probe introduced through the wound passes readily into the joint.

30th.—The patient being placed under the influence of chloroform, Mr. Ferguson proceeded to excise the joint. As in the other cases, this was accomplished by making the vertical incision at the back of the joint. The ulnar nerve being carefully hooked back and secured from injury, the humerus was sawn through just above the condyles, and the olecranon and the head of the radius were also removed. Much bleeding occurred during the operation.

Sept. 1st.—Heath's splint was put on, and sufficient extension made with it to separate the ends of the bones. The wound looks healthy, and the patient suffers little pain.

7th.—The arm was bent for the first time, and caused very little pain.

10th.—The splint was removed to allow the swelling to decrease.

20th.—The splint was left off entirely, as it was thought that the effect it

had had in keeping the bones asunder was sufficient to secure perfect motion in the joint. The patient can flex the arm a little himself, and with slight assistance can raise his hand to his mouth. The wound is looking very healthy, having closed up to a great extent in a surprisingly short period of time. The patient's health is much improved, and a most favorable result is expected.

ART. 112.—*Division of the Tendon of the Triceps in old Dislocation of the Elbow.*
By MR. FERGUSSON, Surgeon to King's College Hospital.

(*Lancet*, Feb. 2, 1858.)

The following remarks are from the "Mirror of the Practice of Medicine and Surgery in London:"—

A boy, whose left elbow had been dislocated with both bones backwards, since October last, was brought into the theatre of King's College Hospital on the 16th of January, the arm being in a semi-flexed position. When under the influence of chloroform, Mr. Fergusson applied forcible flexion, so as to break up any adhesions which might be present, and thus allow of a movable joint. This, however, could not be satisfactorily accomplished until the tendon of the triceps cubiti muscle was divided by subcutaneous incision, where it is inserted into the olecranon process of the ulna. When this was completed, complete flexion was obtained, and the arm was for the present bandaged in that position. After a while motion will be used, and, no doubt, a good useful arm will result from this treatment. Mr. Fergusson stated that a short time ago he treated another case in a similar manner. A gentleman returned from abroad with his elbow dislocated, and his arm in a straight position, the accident having ensued eleven months before. As the arm was perfectly useless in that position, he was most anxious to have something done. Mr. Fergusson, therefore, resolved to try forcible flexion, which did not succeed until the point of resistance was overcome, and that was the subcutaneous division of the insertion of the triceps muscle, when, as in the case of the boy, the most perfect flexion was gained. This gentleman made a good recovery, with a useful arm. Had the operator not succeeded in remedying the awkward position of the arm, he was quite prepared to excise the joint, which no doubt would have given an equally useful arm.

(D) CONCERNING THE INFERIOR EXTREMITY.

ART. 113.—*Of Pain and Weariness in the Lower Limbs of Persons having Flat Feet.* By MR. PAGET, F. R. S.

(*Medical Times and Gazette*, March 13, 1858.)

"Among the numerous instances of this that I have seen in the out-patients' room, I do not remember one in which the patient was aware of his deformity, or did not give an account of himself that was calculated to mislead. The common story is, that he has heavy aching pain in one or both of his ankles, or in his feet or soles; pains extending up the limbs, with weariness, and inability to go through his day's work. And all these or more he ascribes to cold or to some injury; he has no suspicion of deformity, but his feet are *flat*. The soles are, perhaps, not everted; there may be no true valgus, but the feet look elongated, flat, and low, without insteps; the heels are too little prominent, the plantar arches sunken, the ankles thick, the astragalus, navicular, and inner cuneiform bones are below their right level. The pains complained of are those of the muscles and tendons, which are habitually overworked, in the task of keeping the body erect, when its proper bearings on its supports are disturbed; and the like pains may exist in any case in which the foot is habitually used awkwardly.

"The treatment of such cases with orthopædic apparatus is generally sufficient for the relief of the pain; rarely so for the cure of the deformity. With such apparatus, and often without it, as the patients (who are generally

between 15 and 20) grow older, the muscles and other structures become accustomed and more adapted to their undue action, and cease to be painful. Many men above 30 who are flat-footed make no complaint of it. The most flat-footed I have seen could walk thirty miles in the day without considerable fatigue.

"In all these cases the pain is probably due to the impairment of composition, which ensues in the muscles during exercise, becoming, at last, greater than can be repaired in their ordinary repose, or when the general health is enfeebled. Pain of a much severer kind, but probably due to a similar condition of unrepaired change of composition, is sometimes consequent on excessive work continued for a comparatively short time.

"A feeble lad, 17 years old, complained of pain in his right arm, especially in the lower part of the biceps, and in the flexors in the forearm. He held his arm bent at the elbow, and nearly straight at the wrist, and he said he could not move it; but he could do so, though feebly and slowly, as if the muscles, though not cramped, were stiff. All the joints could be moved in their full range, smoothly, and without pain. There was no swelling anywhere, but the biceps and flexor muscles felt unequally firm, and some parts of them felt nearly hard, like muscles with the cramp. There were no signs of constitutional disorder, and the only cause that could be assigned for his pain and other trouble was that he had been working for five months as a smith, hammering for ten hours a day. Rest alone, I believe, cured him.

"Sometimes a muscle after excessive exercise passes into a state of nearly fixed contraction, and abides long therein. Wry-neck may thus follow a great exertion of the muscles of the neck; and I have seen an elbow-joint stiff and motionless through rigidity of muscles ensuing in or quickly following a great effort. These cases are to be distinguished from those of rheumatism, which, in persons disposed to it, is often localized in a muscle shortly after it has been subjected to a too wide or violent action. And it would be very interesting to study the similarities between the stiffness and loss of power in exhausted muscles and the rigor mortis; they are much greater, I believe, than would be generally suspected."

ART. 114.—*Excessive Dilatation of the Bloodvessels of the right inferior extremity.* By Mr. ADAMS, Surgeon to the London Hospital.

(*Lancet*, Jan. 2, 1858.)

This unique case is essentially one of congenital dilatation of the arteries and veins of the right lower limb, accompanied by an aneurism by anastomosis in the interior of the os calcis. Death was brought about by the rupture of the aneurism.

Case.—Mr. L—, æt. 30, was sent to me from Canada, on the 4th of August, 1856, for my opinion on his case, by Dr. Lister. He told me that he was subject to a bleeding ulcer near the outer ankle, and that this was accompanied by an enormous dilatation of the arteries and veins. From his own account, it appeared that the disease was congenital, that it had gradually increased, and that only lately it had attained its extraordinary development. He had been subject for many years to occasional attacks of hemorrhage, which he could himself readily control by pressure. He was a healthy-looking man, with no evidence of internal disease, except that his heart beat more forcibly than natural; but this might be attributed to excitement.

The following were the appearances of the limb: The thigh exceeded the other in bulk by one-third. The vena saphena in the thigh was swollen to the size of a man's forefinger, and was distorted in various directions. At the back part of the thigh, there was a pedunculated tumor connected with the vein (evidently a thrombus,) from which the blood could be readily squeezed out. The leg was much attenuated, from diminution in size of muscles; but the veins were excessively dilated, especially about the calf's ankle. The whole surface of the foot was covered by a mass of plex veins. When the muscles of the calf were grasped, the mass gave the

a sponge from which fluid was pressed out. The arteries were of extraordinary size, and could be felt pulsating over almost the entire limb. The impulse at the groin, along the whole course of the femoral artery, and in the popliteal space, was enormous. A distinct, oblong, aneurismal dilatation was felt in the popliteal space to the extent of three inches. Below this, the posterior tibial artery could be distinctly traced along the back of the tibia. On removing the bandage with which the leg was enveloped, there was an ulcer or excavation a little behind and below the outer malleolus. From this source, repeated attacks of arterial hemorrhage had occurred, which were always arrested by pressure. It was covered with an ointment, and I did not remove the dressing, as the patient was fearful of hemorrhage. I therefore carefully strapped the foot and ankle, and replaced the bandage.

August 6th.—I was called to him this morning, in consequence of a smart attack of arterial hemorrhage, which had stopped when I reached his lodgings, but I thought it my duty to examine the source of hemorrhage. I found an irregular, excavated ulcer, larger than a shilling, and filled with a tough coagulum, from beneath which arterial blood was oozing. I had scarcely touched the coagulum, when an immense jet of arterial blood rushed up with a whizzing sound to the height of a foot. I instantly pushed my thumb into the wound, and found a deep hollow extending into a bone. I immediately pushed a piece of sponge into the opening, and sent for the assistance of Mr. Coulson and Mr. Ward, being determined to amputate the limb below the knee. However, the patient would not listen to the proposal, and was satisfied from his former experience, that it could be arrested by pressure as before. We therefore applied firm pressure by strapping and bandaging, and the hemorrhage stopped, although not immediately. I saw him the same evening, when he said he was comfortable, and merely requested that the bandage might be slightly loosened. He had a dose of laudanum, and this was repeated in the course of the day.

On the next morning, I advised his removal to the London Hospital, as his lodgings were exceedingly ill-adapted to any operative procedure which might be deemed advisable. To this he consented.

8th.—I was sent for to him early this morning, and found that hemorrhage had recurred two hours before my arrival, but that it had been stopped by pressure. However, as the plaster and bandages seemed loosened by the effused blood, I removed them, and found that the skin had sloughed to a great extent, that the tendons were laid bare, and that blood was oozing still from many sources; and he was so exceedingly depressed on my arrival that all operation was now out of the question. I ordered as much brandy as could be got down, but he sank half an hour after my visit. I had previously arrested the bleeding by dry lint and bandage to the wound; and had applied the clamp-tourniquet to the inguinal and an ordinary tourniquet to the popliteal artery.

I examined the limb the same afternoon. The arteries from the external iliac were dilated to at least three times the natural size. In the groin there were two aneurismal dilatations of no great size, and connected with the popliteal artery there was an oblong aneurism three inches and a half in length, and an inch and a half in diameter. The coats of the arteries were for the most part exceedingly thin, but here and there they presented patches of atheromatous deposit, so that their area was very irregular. The veins were enormously enlarged; indeed, the deeper-seated veins accompanying the posterior tibial and fibular arteries were so large as to give the idea of large venous sinuses rather than veins; coagula as large as pullets' eggs could be readily drawn from them, and they were so firmly adherent to their accompanying arteries and the periosteum of the bones that it was impossible to detach them. The outer surface of the os calcis, now deprived of its periosteum, was perforated by numerous large openings, whence the hemorrhage had occurred; the interior of the bone was filled with coagulum and the *débris* of bloodvessels, and on maceration its cancelli were found remarkably attenuated, and almost wholly gone. The astragalus had begun to exhibit marks of disease, as the periosteum was gone in that space where the interosseous lig-

ament connects it with the os calcis. No other part was examined, as we were restricted in the opportunity of any further examination.

ART. 115.—*The Subcutaneous Operation on Varicose Veins.* By Mr. HENRY LEE, Surgeon to King's College Hospital.

(*British Med. Journal*, Jan. 9, 1858.)

When blood is effused into the cellular tissue in the living body, it undergoes changes varying in different cases. Sometimes it is simply absorbed, leaving the surrounding parts as they were before; sometimes the fibrin becomes separated from the more fluid parts of the blood, and remains after these are removed. Again, the effused blood may remain contained in a kind of sac, of a dark grumous color, for weeks or months; or finally, it may undergo a process analogous to that of suppuration, and be discharged, more or less deprived of its coloring matter, as from an abscess. Blood that remains for any lengthened period stagnant in veins undergoes somewhat similar changes. It may be deprived of its serum, and its more solid parts may remain, obstructing the veins for almost an unlimited period, or it may become dark and grumous, undergoing a kind of slow decomposition; or again, in the fibrin previously separated from the other constituents of the blood, cell-development may take place, and an abscess will form in the vein.

In the various operations which have from time to time been practised for the obliteration of varicose veins, the effused and stagnant blood has occasionally either undergone a kind of decomposition, or has become involved in an abscess; and when the products of these changes have become mixed with the blood, it is now well known with what fatal certainty their presence is manifested. The occasional, although rare occurrence of the symptoms, now recognized as those of blood-poisoning, after operations on the veins, has led surgeons from time to time to seek for modes of operating which should be free from the dangers previously experienced.

In 1815, Sir Benj. Brodie published a paper in the "*Medico-Chirurgical Transactions*," in which he advocated the subcutaneous division of varicose veins. In that paper, the advantages of the subcutaneous mode of operating are clearly pointed out. (A description here followed of Sir B. Brodie's mode of performing the operation.) In this mode of operating, no adequate provision is made against hemorrhage from the divided vessel on the one hand, nor against the absorption through the open mouth of the vein of the products of the effused or stagnant blood on the other. If a vein be simply divided, no one can tell exactly how much blood will be effused; and, if effused in quantity, the changes above mentioned will occasionally take place. These changes may occur either in the blood outside the vein, or in the stagnant blood still within the vessel, or the action may be communicated from one of these to the other. The product of these changes may be localized by the unassisted powers of nature; the vein may be closed, so that no absorption through its canal can take place. In like manner, an artery, when divided, may spontaneously cease to bleed; but nevertheless surgeons are not fond of trusting to these unassisted powers of nature. In one case, as in the other, that which may take place from natural causes may be with tolerable certainty effected by artificial means. The vein, like the artery, may be safely and efficiently closed. If this be carefully done before an enlarged vein is divided, the effusion of blood is in the first instance prevented, and there is proportionately less risk of any of the morbid changes which have been referred to; and secondly, even should such changes take place, the products of such changes are prevented from entering the circulation through the wounded vein.

Such were the considerations which induced Mr. Lee in the year 1853 to try a new mode of performing the operation of subcutaneous division of varicose veins. The plan then adopted was to place a needle under the vein both above and below the part to be divided. A ligature was then placed over the needle in each situation, and allowed to remain for a couple of days. At the expiration of this time the blood was usually coagulated in the vein, which would be felt as a round soft cord on either side of and between the needles. The vein

was now divided by subcutaneous incision, and two days later the needles were removed. After three or four more days the parts usually had the appearance of having united by the first intention, and the patient was allowed to go about his usual occupation. In his first attempts to perform this operation, he could not say that his success had been quite such as he could have wished, and indeed expected. One case in particular had some severe local and constitutional symptoms; and he had reason to believe that an abscess had formed in the vein, where it had been traversed by one of the needles. Reflecting subsequently on the cause of this, he became convinced that the origin of the mischief was, that the needle had pierced the vein instead of being made to pass fairly under it. In subsequent operations this point was attended to, and performed with due precaution, as it has now been by Mr. Erichsen, and various other surgeons, a great number of times, and it has not, so far as Mr. Lee was aware, been attended with danger. During the last twelve months a further improvement, as he conceived, had been effected in regard to this operation. The vein is divided as soon as the needles have been placed under it. The subcutaneous incision heals in about the same time as in the other operation, and the confinement of two days previous to the section of the vein is avoided. In this operation the blood which the vein contains between the two needles is allowed to flow out of the incision; and thus any tendency that there might be for stagnant or effused blood to decompose is avoided. In performing the operation in the manner now described, the blood contained in the veins between two needles escapes; the sides of the vein necessarily fall together, and are maintained in apposition. The sides of the vein compressed by the needles and ligature suffer no violence or injury. The subcutaneous incision is pretty sure to heal by first intention, and even should it not, the vein being closed above and below, no diseased secretion can find its way along its channel. Various cases were given to illustrate the different modes of producing obliteration of veins by subcutaneous division.

ART. 116.—Chronic Hydrarthrosis of the Knee-Joint treated by Iodine Injections.
By Dr. McDONNELL, Surgeon to St. Patrick's Hospital, Montreal.

(*Montreal Med. Chronicle*, Nov., 1857.)

This is the seventh case which Mr. McDonnell has treated in this manner with perfect success, and without the slightest unpleasant result.

CASE.—J. W—, *at*. 13, was sent from a town in Vermont, to consult Dr. Howard, the oculist, for an affection of the eyes; he was admitted into St. Patrick's Hospital, where it was observed that in addition to the disease of the eyes he also labored under a chronic hydrarthrosis of the left knee-joint, which had caused lameness, and was attended with much pain at the inner side of the joint and at the insertion of the ligamentum patella; the joint was swollen, and globular in appearance; the increase in size amounted to nearly two inches more than the healthy articulation; the swelling was soft, fluctuated on pressure, and the fluid could be forced from the lower part to above the patella, on the front of the femur; a crepitating sensation was experienced when the joint was minutely examined. There was no heat of the joint nor discoloration. He was placed under a mild mercurial course, combined with blistering, stimulating liniments, rest in the recumbent posture, starch bandages, strapping with the mercurial plaster, and the mercury was followed by a course of hydriodate of potash. After a lapse of nearly two months no improvement was perceptible, and I resolved to puncture the joint and inject with iodine; accordingly this operation was performed, in the manner already described, on the 1st of July; no pain followed the operation. About four ounces of fluid was drawn off; it was transparent, of a light straw color, and coagulated slightly on cooling; the opening was closed with adhesive plaster, a wet roller was carried round the limb from the toes to above the knee-joint, and a padded splint was applied to the back of the leg and thigh. No uneasiness or pain followed the operation, and the joint quickly regained its natural appearance; the pain vanished, and at the end of ten days he was able to walk about; but as a measure of precaution I still kept the joint supported by a starched bandage. This

patient was seen by some American surgeons during their visit to the scientific association held here last August, as well as by some practitioners of this city.

The above makes the seventh case in which I have employed, in chronic hydrarthrosis of the knee-joint, injections of iodine, and I have not in a single instance witnessed the least unpleasant result follow the practice, and in all it has been eminently successful. Before concluding, I would direct attention to the following points:—

1st. The necessity of a careful diagnosis. It is in chronic hydrarthrosis alone that I recommend iodine injections.

2d. Puncture the sac above the level of the patella and on the front of the femur, having first made the tumor tense by a bandage carried round its lower portion.

3d. Inject two drachms of tincture of iodine with two drachms of lukewarm water.

4th. Having injected that amount of the fluid, manipulate the joint, so as to bring all its surface into contact with the fluid, which is then to be allowed to remain.

5th. Close the external wound, and surround the joint with a wet bandage, which should be carried upwards from the ankle to above the knee.

6th. Keep the limb in a straight position on a padded splint.

7th. Do not allow any motion to take place for at least a week after the operation.

8th. When the patient is allowed to leave his bed, take off the wet bandage and surround the joint with a starched bandage.

ART. 117.—*On Excision of the Knee-Joint.* By MR. HUMPHREY, Surgeon to Addenbroke Hospital, Cambridge.

(*Proceedings of the Royal Med. and Chir. Soc.*, March 9, 1858.)

The paper contains an abstract of the thirteen cases operated upon by the author. Of these, one (a little child, in whom the operation was performed on account of acute suppuration of the joint) died; in four amputation was required, the patients all recovering; and the remaining eight did well, retaining, or with the prospect of retaining, a useful limb in each case. In none were any severe constitutional symptoms excited by the operation, from which it might be inferred that the operation is not in itself one of much danger. Nevertheless, the processes of reparation are more difficult than after amputation; there is likely to be protracted discharge and recurrence of abscesses, &c., and therefore, when the patient is of strumous temperament, or in a very reduced state, amputation is to be preferred to resection. The results of excision are likely to be favorable in proportion as the disease for which it is performed is slight and not acute. Amongst the most suitable cases are those in which the severe stages of disease have passed by, and left the joint crippled, and the limb, consequently, useless. The cases, also, in which simple inflammatory disease, commencing in the synovial membrane, involves the cartilage and bones, destroying the former to such an extent as to leave little hope of a useful joint, are well suited to excision. But where the disease remains long confined to the synovial membrane, inducing great thickening and various other changes in it, the prospects of excision are less good, because the subjects of this form of disease are generally of strumous temperament, and some portions of the morbid structure are liable to be left, and so become sources of irritation and suppuration. Nevertheless, the author would not altogether decline to perform the operation in this latter class of cases, inasmuch as the remaining fragments of the diseased membrane may fall into a quiescent state and disappear, and the cases do well, provided the bones become firmly united to one another; and if the health begins to fail, the limb can still be removed. The operation is also well suited to some other cases of rarer occurrence, such as certain cases of chronic rheumatic arthritis, knock-knee in the adult, unreduced dislocation, compound fracture of the patella, &c. In performing the operation, Mr. Humphrey makes a crucial external incision, takes away the patella, and dissects the soft parts away from the bones no more than is absolutely necessary for

the removal of their articular ends, is careful to tie the bleeding vessels, and to secure good apposition to the cut surfaces of the bones and of the skin. The straight position and quiescence of the limb are secured by splints and bandages, which should be changed no oftener than is necessary for cleanliness. The after-treatment was very simple in all the cases related; opiates were very rarely given, and stimulants were generally avoided.

ART. 118.—*Excision of the Os Calcis by a New Method.* By Mr. ERICHSEN, Surgeon to University College Hospital.

(*Lancet*, Jan. 30, 1858.)

Excision of the os calcis is usually practised by making an incision across the sole of the foot, from one malleolus to the other, turning back the heel-flap thus formed, making another incision forwards over the calcaneo-cuboid articulation, and then dissecting out the bone. In such an operation as this, the sole is extensively incised, and there is the after-disadvantage of cicatrices being left along the line of most pressure. In order to obviate this the operation was modified, as described in the following case, drawn up by my dresser, Mr. James. The modification consists in carrying a horseshoe incision from a little in front of the calcaneo-cuboid articulation round and behind the heel, to a corresponding point on the opposite side of the foot. The semicircular flap thus formed is dissected up by carrying the bistoury close to the os calcis, the under surface of which is exposed. A perpendicular incision is then made, about two inches in length, over the middle of the tendo-Achillis, falling into the horizontal one. The tendon is then detached, and the two lateral flaps dissected up, the knife being kept close to the bone. The blade is then carried over the upper and posterior part of the os calcis, the articulation with the astragalus opened, the ligaments divided, and the bone turned out. The articular surfaces of the astragalus and cuboid should be examined, and, if carious, gouged out. When the flaps are brought together, there is no line of incision in the sole, the horizontal one running round the sides of the foot, and the perpendicular one being above this, and behind the heel. M. Guérin describes an operation similar to this as having been practised by him on the dead subject, but he states that he has had no experience of it on the living. Judging by the case in which Mr. Erichsen has recently performed it, it is easy of execution, and leaves an excellent result.

CASE.—Frederic C—, æt. 45, a man of the ordinary stature, having a rather dusky appearance of the skin. By occupation he is a plumber, which he has always followed. He has always enjoyed good general health. He states that he has never had any colic or wrist-drop; but he has now a blue line along the edges of the gums. When about the age of twenty, he had a severe blow on the inner left ankle, or a little above it; after a time this "gathered," and was opened. About five years ago he fell and injured his left foot; his comrade pulled it forcibly, with the intention of reducing a supposed luxation, with no good result. About two years ago an abscess formed at the back part of the heel; the abscess was opened, and the patient states that he was told that a bone was diseased. Last April, having caught a severe cold, his right leg became very painful, red, and swollen. There had been a brownish-red line along the integument over the tibia for two years previously. He was ordered to use hot fomentations and poultices. An abscess was opened over the head of the tibia about two months afterwards. He was then admitted into one of the London hospitals; some diseased bone was removed (patient states) from the head of the right tibia, also from the right os calcis.

Present state.—The patient is in good health, appetite good, bowels open, &c. He cannot walk, though he can bear on his left foot to a slight extent; the right limb is of more use to him, but even that is not very strong. The integuments over the left ankle and its vicinity are tense and shining, looking somewhat like cicatricial tissue. About six inches above the heel a small aperture is observed, and, on introducing a long probe, it is found to communicate with the os calcis by means of a sinus; the bone was found to be bared, the crepitus was easily felt. There was also an open sinus near the anterior part of the

astragalus on the outer side of the foot; grating was here felt on introducing a probe. There was a pretty fair amount of movement admitted of in the ankle-joint, hence it was diagnosed to be disease of the os calcis, superiorly and posteriorly, and near its articulation anteriorly with the cuboid, but the astragalus was considered to be sound, since its movement on the bones of the leg was good. The upper part of the right leg has also the appearance of cicatricial tissue on its anterior surface, especially over the head of the tibia, and the red line over the course of the tibia is still present. On introducing a probe, grating is felt. A poultice was applied to the ankle, and the patient was placed on a good diet.

December 11th.—Appetite being rather deficient, he was ordered two grains of quinine three times a day.

15th.—Appetite improved, bowels regular.

16th.—The patient being placed under the influence of chloroform, Mr. Erichsen commenced operating by making a longitudinal incision over the head of the right tibia. The edges of the wound being drawn aside, a good deal of necrosed bone was removed by means of the gouge and Mr. Marshall's osteotrite. The cavity thus formed extended upwards very nearly to the knee-joint. It was plugged with lint. While still under the influence of chloroform, the patient was turned on his left side, or nearly on his face, to facilitate the removal of the os calcis. An incision was made just above the sole of the foot, extending from the cuboid on the outer side to the scaphoid on the inner side of the foot, passing round the point of the heel. The posterior part of the sole was then separated from the os calcis, and reflected forwards, the calcaneo-cuboid articulation being opened. The tendo-Achillis was next divided, and the soft parts dissected up on either side, and in doing this a small abscess seemed to have been opened, for a little pus suddenly gushed out, apparently from the cavity in the os calcis. A longitudinal incision about an inch in length was then made over the tendo-Achillis, so as to allow of the lateral soft parts being reflected upwards whilst the calcaneum was being excised. Some difficulty was met with in removing the os calcis, and it was soon found to be ankylosed to the astragalus; it was then sawn off by means of Butcher's saw along the line of articulation, and some small portions of the bone which were left attached to the astragalus, also necrosed, were removed by means of the gouge and bone-forceps. A good many arteries were tied. The flap (consisting of the sole) was replaced, and retained by the aid of a few sutures and a strip of plaster. A suture was also put into the lips of the longitudinal incision above the tendo-Achillis. Water-dressing was applied.

On examination after its removal, the os calcis was found to be considerably excavated. The cavity, large enough to admit a finger, commenced between the tendo-Achillis and the calcaneo-astragaloid articulation; it extended in an arched direction downwards and forwards, then upwards to the astragalus at its articulation with the os calcis. The shell of bone surrounding it was much condensed in structure. A small piece of necrosed bone was found at the bottom of the cavity.

Since the operation the patient has gone on favorably, no bad symptom of any kind having occurred, and the wound in the foot being in a great measure healed.

ART. 119.—*On the Treatment of in-growing Toe-nails.*

By Mr. JAMES LONG, Surgeon to the Liverpool Royal Infirmary.

(*Liverpool Medico-Chirurgical Journal*, Jan., 1858.)

Speaking of this plan of treatment, which he has practised for nearly thirty years, Mr. Long says: "I first wash the toe in tepid water, and make the parts as dry as possible with cotton wool. I then, with the flat end of a very fine probe, insinuate between the nail and the granulations a little cotton wool, which I extend backwards along the groove between the base of the nail and cuticle. I next freely rub the nail with nitrate of silver, close to the cotton, not allowing the caustic to touch the granulations; and, lastly, place a thin layer of cotton wool around the toe.

"If examined in two days or so, the state of the parts will be found as follows: The nail will be perfectly black, and detached from the parts underneath to a greater or less extent; the cotton wool, by its imbibition of the caustic and secretions, will have become converted into a hard bluish substance; the granulations will have receded from the nail, and their extreme sensitiveness will have disappeared. The dead piece of nail can then be easily removed by a fine pair of scissors introduced underneath it, and a little cotton wool, carefully introduced into the gap, will, in a simple case, complete the cure.

"Should the nail be very thick, it will be necessary, after the first application of the caustic, to scrape off the dead and blackened surface, and apply it a second time before the nail becomes so permeated by it as to lose its connection with the parts beneath. A third application is rarely required. By applying the caustic over the whole nail, and around its base and borders, and pushing the skin back by means of cotton wool introduced between it and the nail, after each application, the whole nail may be removed without pain. The recurrence of the growth may be prevented by scraping the middle of the body of the nail from time to time, so as to keep it thin, introducing at the same time a little cotton wool along its border.

"Dr. Nevins has directed my attention to the following remarks on the above subject in his 'Translation of the Pharmacopœia,' in the article on Nitrate of Silver: '*Previous to the removal of the nail, the moistened nail ought to be freely rubbed with this caustic, and in two or three hours a poultice should be applied; this makes the nail soft, and the next day, if the nail be again washed in hot water, it can be dissected with ease from the adjacent tissues, as far as the caustic has been applied.* By this means the horrible and barbarous operation of tearing out the nail, or a portion of it, by force, may be entirely dispensed with. I can speak of this with confidence, having applied it thus in several instances.'"

PART III.

MIDWIFERY AND DISEASES OF WOMEN AND CHILDREN.

(A) CONCERNING PREGNANCY AND PARTURITION.

ART. 120.—*On the Membrana Decidua which surrounds the Ovum in cases of Tubal Gestation.* By Dr. ROBERT LEE, F. R. S.

(Proceedings of the Royal Med. and Chir. Society, Jan. 26, 1858.)

THE author commences this communication by citing various authorities to prove that the common opinion from the days of William Hunter to the present time was that the decidua, or outer surface of the secundines, belong to the uterus, and not to the ovary, or that part of the conception that is brought down from the ovary; and that in cases of extra-uterine pregnancy, a deciduous membrane was still to be found in the cavity of the uterus.

But a case is recorded in the seventh volume of the "Medico-Chirurgical Transactions," in which the uterus is stated to have been "considerably larger than we observe that organ to be in the unimpregnated state, even in women who have borne several children. On laying it open, the uterine vessels were observed to be very large but empty, and there was a great quantity of gelatinous matter in the cavity and neck of the uterus. When this was washed off, the internal surface of the viscus looked very vascular, having been highly injected; but there was not the least appearance of a decidua."

A second case is recorded in the seventeenth volume of the "Medico-Chirurgical Transactions," in which the author himself was surprised at finding that "no organized deciduous membrane lined the cavity of the uterus, but the whole of it was coated with a thin layer of albumen." This case occurred in 1829, and the preparation was placed on the table of the Society in 1832; but until 1836, when another example of tubal gestation came under his observation, it does not appear that he made any attempt to determine whether the ovum in the Fallopian tube was surrounded by decidua. The two preparations were then examined together, and a description of the appearances observed was published in the "Medical Gazette" for 1829-40. These cases, with four others which have subsequently come under his observation, were the subject of the present communication.

In Case 1, on opening the tube, and examining the different parts of the ovum, he found a deciduous membrane everywhere surrounding the chorion, and closely adhering to the inner surface of the tube, as the decidua usually does to the lining membrane of the uterus. With the decidua, the chorion, amnion, and embryo were distinctly seen. The uterus was larger than natural, and there was no appearance of decidua lining its internal membrane.

In Case 2, on carefully examining the ovum contained in the right Fallopian tube, it was evident that a deciduous membrane everywhere surrounded the chorion, and adhered to the inner surface of the tube. The placenta, which was situated at the extremity of the ovum nearest the uterus, was seen covered with the decidua, and coagula of the fibrin of the blood were traced from the interstices of the placenta through the decidua into veins in the thickened muscular coat of the tube. The uterus was considerably enlarged, and its inner

surface was coated with a very thick layer of yellowish-white soft substance. There was no trace of any arterial or venous canal in this cavity.

In Case 3, the foetus had reached the age of six months, and was contained in a cyst which adhered to the omentum and intestines, and to the surface of the uterus, and contained a great quantity of thin, fluid-like pus. The walls of the uterus were healthy, and the cavity empty. There was no decidua or substance of any kind coating its inner surface, but a decidua was attached to the placenta in the usual manner.

In Case 4, the greater part of the ovum had been removed, but still the decidua reflexa could be very distinctly seen covering a considerable portion of the villi of the chorion. In the uterus was found a coating of considerable thickness, and of a yellowish-white color, in which neither arteries nor veins could be traced.

Case 5 was also one in which only a portion of the decidua was found in the tube.

In Case 6, the substance lining the cavity of the uterus resembled the fibrin of the blood, and was of a red color at its upper part; where it had been detached from the surface of the uterus, the lining membrane presented a perfectly natural appearance. The embryo was inclosed in the amnion, with the vesicula umbilicalis remarkably large. The cells of the placenta and the villi of the chorion were distended with coagulated blood, and surrounded by deciduous membrane. By a careful dissection subsequently made, the decidua was found to consist of placental decidua, decidua vera and reflexa, with a decidual cavity.

An enumeration of the preparations in St. Bartholomew's and Guy's Hospital Museums was appended, illustrating the pathology of Fallopian tube conception. In the former there are five examples, and of one of these the museum catalogue states that "the outermost membrane inclosing the foetus has all the character of decidua. Besides this membrane, the amnion and chorion are distinct; the foetus and umbilical cord are also perfect." In the opinion of the author, there could be no doubt that a decidua surrounds the ovum; and though none of the other preparations had been dissected with the view of ascertaining the point, yet in all the separation of the ovum from the inner surface of the tube has been carried to an extent sufficient to enable us to demonstrate the fact. There are thirteen preparations in Guy's Hospital Museum. The author was permitted by Dr. Wilks, the conservator of the museum, to make a minute examination of the ovum in one of these, which had escaped entire through a rent in the Fallopian tube. He had the satisfaction not only to discover the vesicula umbilicalis, but to see the chorion completely surrounded by decidua, as in Case 1. There could be no doubt that if the ova in these preparations were submitted to a similar examination, a decidua would be found in all, surrounding the ovum in the Fallopian tube. He did not wish to express an opinion on the nature of the membrane or substance found coating the inner surface of the uterus in the greater number of these preparations, which has been almost universally considered to be decidua since the days of Dr. William Hunter, although no bloodvessels in it have been discovered. His great object was to demonstrate the existence of a decidua around the ovum in cases of tubal gestation.

ART. 121.—On the Excitation of Fœtal Movements by Cold. By Dr. AVELING, of Sheffield.

(*Dublin Quarterly Journal of Medical Science*, Nov., 1857.)

Dr. Aveling's paper will be found at p. 198 of our last volume, with the name of Dr. Sinclair attached to it. The paper had been read by Dr. Sinclair at a meeting of the Dublin Obstetrical Society. We regret this oversight, and beg to apologize to Dr. Aveling for it.

ART. 122.—On Menstruation during Pregnancy. By Dr. ELSASSER.

(*Monatsch. für Geburtskunde*, Bd. lxxiii, 1857; and *Med. Times and Gazette*, April 24, 1858.)

This contribution to a disputed topic is founded upon 50 cases, extracted

from the journal of the Stuttgart Lying-in Hospital, cases which are said to rest upon the most certain information. The subjects were 15 primiparæ and 36 pluriparæ, who, with the exception of two women (aged 36 and 41), were between 20 and 30 years of age. Of the 51 children born, 34 were boys and 17 girls, 36 being mature and 15 immature. The menstruation during pregnancy occurred in 50 women, in the following manner—once in 8, twice in 10, three times in 12, four in 5, five in 6, eight in 5, and nine in 2. In 13 cases the peculiarities of the rhythm of the discharge were inquired into, and the rhythm was found regular in 4, in 1 it occurred at the sixth week, in 3 there were pauses between the epochs, in 2 the menstruation first appeared after the second month, in 2 after the fourth, and in 1 after the fifth month. In one case the menstruation first appeared in the middle of gestation, and henceforth came on every four weeks, lasting three or four days. The child, perceived but feebly at first, was strongly felt during the last four or five weeks. Hemorrhage occurred twice within a week before delivery, but a mature, living infant was born. Indications as to the amount of discharge were furnished in 26 cases, and in 18 of them it was less than in the non-pregnant condition. The weight of the 35 mature infants varied from 5 lbs. to 9 lbs.

Dr. Elsässer observes, that although he is unable to state the proportion of cases in which menstruation occurs during pregnancy, it is by no means so exceptional an occurrence as supposed by some authors. It occurs more frequently in pluriparæ than in primiparæ; and it takes place much more frequently during the first half of pregnancy, and especially in the earlier months of this, than during the latter half. The amount of discharge too is smaller than in normal menstruation. The duration of the pregnancy was normal in more than two-thirds of these cases (36), while in nearly one-third (14) of the cases it was interrupted, in 4 during its first, and in 10 during its latter half. As regards the development of the child, which by some authors has been supposed to be impeded by the occurrence of menstruation, this was found to be normal, or more than normal in three-fourths of the cases.

ART. 123.—*Case of Pregnancy where Menstruation had been absent for some years.*
By Dr. O. C. GIBBS.

(*North American Medico-Chirurgical Review*, Sept., 1857.)

CASE.—February 2d, 1857.—I was requested to visit Mrs. A——, who resided some twelve miles off. I complied with the request, and found the patient, who was a stranger to me, able to be about the house most of the time, and perform some light work. She complained of extreme fulness and pressure about the bowels and chest; respiration was short and hurried; slight exertion produced dyspnoea; a full meal increased the sensation of oppression, which was occasionally relieved by vomiting, the latter occurring without nausea. She had frequent desires to urinate, being compelled to rise from six to a dozen times a night for that purpose. The horizontal position was insupportable, and she could sleep only by being bolstered up to nearly a sitting posture. Though pale, she was quite corpulent; yet it was evident her abdomen was greatly distended by some foreign substance.

The history of the case was this: She was thirty-two years of age; had been married ten years; had never borne children; never had an abortion; never had unnatural uterine hemorrhage. From the commencement of her menstrual period until about three months subsequent to her marriage, she had been quite regular in her catamenia. From this time she became quite irregular, both as to the time and quantity of her menstrual flow, the time varying from six weeks to six months, and the quantity unusually small. For the first seven years succeeding her marriage, the catamenial irregularity was as stated above. During the eighth year she menstruated but once, and during the ninth and 10th not at all. Hence, it will be seen that, in this case, ovarian integrity, which determines menstruation, had been gradually waning for nearly ten years. During the last three years my patient had menstruated but once very scantily, and that once about two years since. The abdomen had been slowly but steadily enlarging for five years, though more rapidly during

the last few months. She had been, for the last two years, at different times, under the treatment of different physicians, without apparent benefit, for the same symptoms, for the relief of which she now consulted me. So much for the history and general symptoms of the case.

In view of the irregularity of the menses and their total suppression for about two years, pregnancy was supposed impossible, and hence, not considered in the further examination of the case. It seemed to me evident that the case was one of ascites, encysted dropsy of the ovaries, or an accumulation of menstrual or other fluid within the uterus, in consequence of the impermeability of the cervix uteri. With the patient lying upon the back, percussion over the abdomen yielded a dull sound in front, with resonance near the spine; fluctuation was distinct, and after a careful examination I could detect no solid tumor in the abdominal cavity. Dulness on percussion, elasticity, and fluctuation, characterized the abdominal enlargement. The case was evidently not one of ascites.

A digital examination of the uterus per vaginam was made, but in consequence of the elevated position of that organ and the corpulent condition of the patient, no positive results were obtained. I could not reach the os uteri, but it was evident that the womb was much distended. This fact alone inclined me to the opinion that I had to deal with a case of impermeability of the cervix uteri, and a consequent retention and accumulation of menstrual or other fluid within the uterine cavity. I was not wholly satisfied with my diagnosis, and acknowledged to the patient my indecision; but being earnestly pressed by the friends for a definite opinion, I stated that there was an unnatural secretion of fluid, a dropsical accumulation, which in my opinion was partly within and partly external to the uterus. As the sequel will show, this statement was true so far as it went, but it was not the whole truth.

My remedial efforts were directed wholly to the mitigation of the more prominent and distressing symptoms, and were not wholly without utility. I saw the patient at intervals of a week or ten days, and at my third visit again made a thorough examination of the case, with the hope of more satisfactory results. In this I was disappointed, and consequently pursued my former plan of treatment, waiting patiently for further developments in the case.

About six weeks after my first visit, I made a third examination per vaginam, and accidentally detected ballottement. This diagnostic symptom was certainly unexpected, but it was distinct and unmistakable. It probably might have been detected at first, but it had not been sought for; but, in view of circumstances previously stated, pregnancy was supposed impossible, and consequently no means were taken to detect it. I again examined the abdomen externally, but no manipulation which I could bring to bear upon the case gave evidence of a solid body within; yet to my great mortification, and the patient's great surprise, I unhesitatingly pronounced her pregnant.

About a month after this, and two and a half from the time I first saw the patient, she was taken in labor and was delivered of a male child, to all appearances fully developed as to time, yet weighing only about three and a half pounds. There was nothing peculiar about the labor except that the liquor amnii was excessive, there being probably from six to eight quarts. There was considerable fluid remaining in the abdomen after labor, giving evidence that the case was complicated with ascites. The woman recovered, with no unpleasant symptoms, the ascites passing away without treatment. The child died at two months old, of capillary bronchitis; and up to the present time the menstrual function has not returned, though the woman seems in perfect health.

This case presents some points of peculiarity, which it seems to me were well calculated to deceive in the outset, in regard to its true nature. The patient was a lady of refinement, and of more than ordinary intelligence, and I think the utmost reliance can be placed upon her statements. I certainly can appreciate no motive which she could have for deception, and her statements were confirmed by her husband, also by her sisters.

ART. 124.—*Hemorrhage in early Pregnancy practically considered.* By Dr. HENRY BENNET, Physician-Accoucheur to the Royal Free Hospital.

(*Lancet*, Jan. 31, 1858.)

Hemorrhage during the early stages of pregnancy is generally, if not always, a source of anxiety and doubt, both to the patient and to the medical attendant. Of anxiety, because it is the constant forerunner of abortion; of doubt, because its repeated appearance, simulating irregular menstruation, often throws a doubt on the reality of the pregnancy.

Hemorrhage occurring under these circumstances is still too exclusively considered by accoucheurs in connection with diseased conditions of the ovum and of its membranes. The important fact, that it is frequently the result of chronic inflammatory conditions of the body and neck of the uterus and of the cervical canal—a fact to which the author drew attention many years ago—is still generally ignored and overlooked; and yet the additional experience he has since acquired has completely confirmed the truth of the views he then brought forward.

Hemorrhage may occur during early pregnancy, owing to the partial separation of the ovum from its uterine connections; owing to the existence of a blighted ovum or mole; or owing to the above-mentioned inflammatory conditions.

When the connection between the ovum and the uterus is modified, under the influence of the maternal, fetal, or accidental causes, which are generally recognized as the causes of abortion, hemorrhage is the usual result. In a case of this kind, if the cervix uteri is brought into view, it is found quite healthy, merely presenting the size and color that pertain to the stage of pregnancy which the patient has reached. The blood is seen gently oozing from the orifice of the cervical canal. These are the cases in which rest and constitutional treatment alone are required, and often succeed, especially when the hemorrhage has followed some accidental cause. As long as the fœtus is alive, there is reason to hope that any mischief that may have occurred may be repaired, the hemorrhage arrested, and the pregnancy saved. Moreover as we cannot tell positively, at first, whether the fœtus has died or not, it is our duty to continue our efforts to preserve it, until the violence of the hemorrhage has destroyed all hope, or until the abortion has actually taken place.

The hemorrhage which is occasioned by the conditions that lead to abortion is, generally speaking, either subdued, or it continues, notwithstanding treatment, until the abortion has occurred. It may be arrested, and then break out again and again, but this is the exception. When uterine hemorrhage occurs irregularly in the early months of pregnancy, the cervix uteri being free from inflammatory lesions, stopping and returning repeatedly, without uterine contractions, it is generally occasioned by the presence in the uterus of a blighted ovum or mole; and, in some rare instances, by that of hydatids.

The fetal germ may die soon after conception, and become atrophied, absorbed, or lost, whilst the membranes and placenta may continue to grow, like moss on a wall, deriving nourishment from the inner surface of the uterus, and forming an indistinct fleshy vascular mass. It is to intra-uterine masses of this description, the true origin of which was long unknown, that the term mole has been given. Their presence in the uterus, and progressive development, sometimes for many months, gives rise to many, if not most, of the symptoms of pregnancy, and is attended all but invariably with repeated irregular hemorrhage. Sometimes the hemorrhage is constant; sometimes it is irregularly periodical, simulating morbid menstruation. When these symptoms are present, the state of the patient is necessarily one of doubt and uncertainty until the mole is expelled. The morbid product to which the name of hydatids of the uterus has been given, is probably generated under the same circumstances, and its presence is attended with identically the same symptoms, viz., irregular, constantly recurring hemorrhage, and the more or less perfect reproduction of the ordinary signs of pregnancy.

The above are the generally recognized causes and forms of hemorrhage

during the early stage of pregnancy, and with them we may group chronic inflammation of the body of the uterus. The cause to which the author wishes specially to draw attention, viz., inflammatory lesions of the cervix uteri, although overlooked as yet by most accoucheurs, is most certainly the one which is by far the most frequently met with in practice, and the one also over which we have the greatest therapeutical control.

Inflammation and ulceration of the mucous membrane covering the cervix uteri, and lining the cervical canal, is now generally admitted to be a lesion of frequent occurrence in child-bearing women. Such being the case, and the presence of these morbid conditions, although a cause of sterility in some, not preventing pregnancy in many, the two conditions, pregnancy and inflammatory ulceration, must and do often exist. Whenever their co-existence takes place, occasional hemorrhage, slight or severe, may be said to generally occur, and the more readily as all ulcerative lesions of the uterine neck assume in pregnancy a very irritable fungoid character. Thus hemorrhage may occur spontaneously, or it may depend on accidental causes, such as over-exertion, marital intercourse, &c. It may be irregular or it may be periodical, simulating menstruation. In any case, its existence is not so much, in most instances, a danger as a relief to the congested and inflamed uterus. The real danger is the existence of the inflammatory disease of the uterine cervix, which causes the hemorrhage, and unfits the uterus for the functions which it is performing. The pressing therapeutical indication is to subdue the uterine disease, to heal the ulcerated surfaces from which the blood so readily oozes, and thus to put an end to the danger which threatens the life of the fœtus.

It will be perceived that valuable rules may be deduced from what precedes, for our guidance in practice. If a healthy pregnant female is suddenly attacked with hemorrhage in the early stages of her pregnancy, we are warranted in considering the hemorrhage the forerunner of abortion, and we must treat it accordingly. The patient must be kept in the recumbent position, mineral acids and sedatives should be given internally, and laudanum injected per anum if there are uterine tormina or contractions present. Of course no examination should be made, as it might prove an additional source of irritation. If, however, the treatment resorted to, at first successful, subsequently fails, the hemorrhage again appearing; or if even on the first attack there are decided antecedents of uterine suffering in the history of the patient, a careful instrumental examination of the uterus and of its cervix should be made as soon as possible. If no inflammatory lesions are discovered, we may prepare for the doubts and uncertainties connected with blighted ova; but if, on the contrary, inflammatory lesions are recognized, they should be at once treated and removed. In the latter case, we may hope that the hemorrhage merely proceeds from the inflamed or ulcerated mucous surface, and that the integrity of the ovum and of its attachments to the uterus has not suffered. Generally speaking, in such cases, if the hemorrhage has not been allowed to continue too long, the pregnancy is saved by the cure of the local disease. I may safely say that I have saved very many pregnancies by applying the above rules of practice, and that many children now alive and well owe their lives to the recognition of these important facts.

In some instances, where the cervix is diseased, inflamed, and ulcerated, and the blood is seen, on examination, to ooze from the ulcerative surface, the fœtus is dead, and the ovum partly detached, when the examination is made; or these accidents occur before the practitioner has had time to modify the cervical inflammation. In such cases, the treatment of the latter disease does not, of course, save the pregnancy. As, therefore, we never can be sure that the fœtus is still sound and alive, or will continue so, it is well to inform the patient and her friends, from the first, that all our efforts may be unavailing to save the existing pregnancy. Were this precaution not adopted, they might attribute the abortion to the very means used to prevent it.

It is worthy of remark, that cases of this description, in which chronic inflammatory thickening and hypertrophy of the cervix complicate the abortion, are those in which the hemorrhage is the most severe, the most continuous, and the most intractable. The reason is very simple. The os uteri, thickened

and hardened by disease, cannot open to allow the ovum to pass, so the latter is arrested *in transitu*, and the hemorrhage continues, mechanically as it were, for days. Dr. Bennett has repeatedly been sent for to cases of this kind, in which the patient, anæmic from loss of blood, was apparently at the last gasp, have found a morbid, rigid os, half open, and have been able with the speculum forceps to extract an ovum thus retained, thereby at once arresting the hemorrhage. As pregnancy advances, the cervix, even when thus diseased, generally softens and yields.

ART. 125.—*On Intra-uterine Fractures.* By Dr. HERBERT BARKER.

(*British Med. Journal*, Oct. 6, 1867.)

In the case which formed the basis of a paper upon this subject recently read before the South Midland Branch of the British Medical Association, no peculiarity of constitution, hereditary or acquired, could be traced to either parents. The mother had borne three healthy children previously, and has since given birth to a fifth, also healthy. During her pregnancy with the subject of the present case, she had a fall down stairs; but from reflection on the case, Dr. Barker does not connect this event with the fractures as standing in the relation of cause and effect. The child, when born, lived about ten minutes. On examination, no suture lines could be traced, and no bones could be felt through the scalp. The humerus of both sides, and the radius and ulna of both arms were broken, as were both thigh bones, and both tibiæ and fibulæ. On dissection, all the viscera were found to be in a normal and healthy condition; and the peculiarities of the fœtus were confined to its osseous system. The frontal, both parietal, the squamous portion of the ethmoid, and the expanded portion of the occipital bone, were entirely absent. "The shaft of the left humerus bulged out in the middle into a round ossified protuberance, of the size and appearance of a small bullet; above and below, the shaft was suddenly contracted to the diameter of a crow's quill. There was ossification at these points, but the bone was so fragile that it would not bear the slightest manipulation. Just above the protuberance in this constricted portion, there was a distinct fracture, slightly oblique, but complete. The fractured ends were jagged, and could be refitted into each other." The right humerus was similar in appearance to the left, save being fractured in two places; the radius and ulna were fractured in two places; the ulna of the left side had also been fractured, and again united by cartilage. The left femur had a tuberosity in the middle of the shaft: like the humerus, it was obliquely fractured in two places above the tuberosity, and in one place below it; and when the ends of the bone were fitted together, it had a twisted appearance. The right femur was similarly fractured, but without distortion. The shafts of the tibiæ and fibulæ were fractured in several places. One great fact with regard to the structure of the bones generally, was their extreme fragility, and the well-marked deficiency of inorganic matter. After carefully burning out all the organic matter, Dr. Barker found the relative proportions to be—

Organic matter	66.66
Inorganic matter	33.34
	<hr/>
	100.00

Dr. Barker considers the cause of fractures in this case quite compatible with the unusual amount of organic matter, from the fact that the earthy matter was irregularly deposited.

The doctor then proceeds to consider some analogous cases, as reported by Dr. Moffat, Chaussier, Baudelocque, Arnaud, Carus, Billard, and Dr. Montgomery.

With respect to the cause of these fractures, Dr. Barker thinks, arguing from this case in particular, that the inequality in the deposition of earthy matters, and the disproportion in construction between the organic and the inorganic parts, was the main predisposing cause. In the modulated parts there was an increase of earthy deposit; in the constricted parts the bone was formed, but was too feeble to bear the pressure to which it was subjected.

In the normal state there is more organic and less earthy matter in the foetal bones: they are, consequently, less liable to fracture than at any subsequent period of life; and especially whilst protected by the mobility of the foetus in the amniotic liquor. Hence, blows or falls are fortunately comparatively harmless in ordinary circumstances.

Dr. Barker draws two practical deductions from his case. Firstly, with regard to labor; and, secondly, in a medico-legal point of view, cautioning the practitioner never to give evidence with respect to fractures in still or newly-born children, without having examined all the bones of the body with reference to their physical strength; their osseous development; the presence or absence of certain bones; the presence of previous fracture and reunion; the presence of external injury, and the contour of the bones and limbs generally.

A second case is reported by Mr. Davies, of Pershore, in which the thigh had suffered a compound fracture, the bones overlapping nearly an inch. This was the sole fracture in this case; and the child has since grown to be a man, with arrest of development in the limb, it being now only about a foot long.

A third case, in which a syphilitic taint was present in the mother, who miscarried at seven months, is reported by Mr. Murray. The child lived a few days with the left humerus and left femur fractured; the whole of this side of the body was soft, consisting of loose, unhealthy fat; whereas, the opposite side was in a state of rigidity and atrophy. The state and composition of the bones in this case were not observed.

ART. 126.—*Report on Cross-presentations.* By Dr. SPAETH.

(*Wien Wochenschrift*, No. 8, 9, 10, 1887; and *Med. Times and Gazette*, Jan. 9, 1888.)

Among the 12,523 births which came under Professor Spaeth's observation while he held the post of assistant-accoucheur at the General Hospital, Vienna, 93 cross-births occurred. Cross-presentations were also, besides these, very frequently diagnosed in pregnant women with exactitude, which on the commencement of labor were converted spontaneously into presentations of the long axis of the body. In primary cross-presentations, i. e., before the rupture of the membranes, the lateral portion of the child's body usually presented, although in some instances the back or the abdomen was found turned towards the os uteri. In the latter cases the extremities were generally found presenting, and in one instance, both the lower extremities and one of the upper were felt within the os, while the axis of the child's trunk lay completely parallel to the transverse diameter of the uterus. In secondary cross-presentations, i. e., the waters being discharged, the foetus, when normally developed, always presented with its shoulder; of 56 exactly indicated cases, in which the lateral part of the body or the shoulder presented, in 39 the back of the child was placed forward (24 times with its pelvic end towards the left side, and 15 times towards the right side), and in 17 it was placed backwards (11 times with its pelvic end to the left, and 6 times to the right side).

The following may be enumerated as causes of cross-presentations:—

1. *Twins births.* Among the 157 instances of those that occurred, the second child was found in the cross-position 13 times—therefore 1 in 12. The first child was always found in the long presentation.
2. *Maceration of the child.* Among 176 macerated children, 7, i. e., 1 in 25, presented crosswise.
3. *Premature birth.* Of 655 children, born between the fifth and ninth month, and not in a macerated condition, 16 presented crosswise—1 in 40.
4. *Placenta prævia.* In 13 cases of this, cross-presentation occurred 3 times. In these 3 cases the placenta was always so placed as to entirely cover the os uteri, while this was only found to be the case in 1 out of the other 10 cases.
5. *Relaxation of the walls of the uterus.* Scanzoni correctly considers unusual relaxation of the parietes of the uterus as one of the most essential circumstances in the production of cross-positions; and it is on this ground that the more frequent occurrence of the position in women who have borne several children is to be explained. Thus of the 93 cases in question, only 20, or of 52 cases not included in the above categories only 10, were primiparæ. Moreover, in the

bulk of the great number of cross-positions ascertained to exist during pregnancy, but which were spontaneously converted at the onset of labor into long presentations, presented this condition of relaxation, the rectification taking place apparently because the contractions of commencing labor obliged the hitherto relaxed organ to assume its natural form, thereby removing one cause of the faulty position. 6. *Abundant liq. amnii*. This was also often observed in pregnant women exhibiting cross-position. With the great mobility of the fœtus which exists in such cases, it is quite a matter of chance whether the fœtus during labor is not found in the cross-position. Among the 93 cases such excess of fluid was observed in 10, and certainly occurred yet oftener, in certain of the cases brought to the hospital only after the membranes were broken. 7. *The cordiform shape of the uterus, i. e., a slight degree of the uterus bicornis*. This was observed in one case only, but this was an example of the recurrence of the position in three pregnancies. Braup relates a similar case; and there is hardly any doubt that this deformity of the uterus, which is as perceptible after the birth of the child as before its expulsion, is a cause of *habitual* cross-position. 8. *Eversion of the abdominal viscera* was observed in two cases by the author, once at the hospital and once in private practice, the child being at about the seventh month in each case.

The course and treatment of the 93 cases were as follows:—

A. *Spontaneous turning*.—This occurred in one case, that of a woman, aged 24, pregnant for the second time. At 8 A. M., 11th June, the waters were unexpectedly discharged. The os uteri was found relaxed, and the ribs of the child could be plainly felt through it. On external examination, the back of the child was found to be turned forwards, its pelvic extremity lying nearer to the entrance of the pelvis than its head, which lay towards the right side. The uterus was soft, and slight contractions only occurred at long intervals. The patient was kept lying in bed on her left side, and strong pains only came on in the afternoon of the 13th. Under their influence, the pelvic end of the fœtus passed spontaneously through the os, the uterus assuming its normal longish-round form. At 5 P. M. the living child was born with ease.

B. *Spontaneous delivery in shoulder presentation*.—This occurred in five instances, and these consisted in a fœtus of five months, one of six, two of seven months, and one at full time. The six months' fœtus and one of those at seven months, were in a macerated condition, and the others died during labor. The first of these cases, on account of the smallness of the child, was left to itself, while the others only came under observation after repeated unsuccessful efforts at turning had been made. The mechanism was the same in all these cases. The shoulder, under the influence of strong pains, was gradually pressed deeper into the pelvis, while the head advanced more and more forwards from the side of the mother towards which it was turned, until at last it lay exactly over the symphysis pubis. At the same time the trunk moved towards the sacro-iliac symphysis on its side, and was, through the pressure excited upon the buttocks by the fundus uteri, forced down the sacral hollow behind the head, so that first the presenting shoulder, then the under part of the thorax, the buttocks, and the feet passed out, and then finally the head was expelled. The complete extrusion of the shoulder, while the head remained at the entrance of the pelvis, was, however, only rendered possible by means of excessive extension of the neck. Two of the mothers suffered from slight peritonitis, but all recovered.

C. *Turning*.—This was effected in 85 cases.

a. *Cephalic turning*.—Besides the very numerous cases of oblique cranial position in which the head deviating to one side or the other, was directed by manipulation into the pelvic entry, this procedure was put into force in six instances of cross-presentation, the manipulation being external in 2, and internal in 4 of the cases. In the two former, the membranes were as yet unruptured, the uterine walls were relaxed, and the pains infrequent, while the child was sufficiently movable, without the liq. amnii being in excessive quantity. The woman having been laid on her back, one hand was placed above the child's head and the other beneath its pelvis, and by simultaneous pressure the one was directed towards the aperture of the pelvis and the other

towards the fundus uteri. As soon as the head had somewhat approached the aperture, its further progress was much favored by laying the woman upon the side corresponding to that towards which it had lain. The children in both these cases were born alive. In the four cases treated by internal manipulation, the membranes were still entire, and the hand corresponding to the side on which the head lay was, during an interval of the pains, passed sufficiently high between the uterine wall and the head to enable it to seize the head and draw it towards the pelvic aperture. This manœuvre was assisted by the other hand, placed externally, either pushing the buttocks up towards the fundus, or aiding in thrusting the head downwards. All the children were born living.

b. *Turning by the buttocks* was executed by external manipulation in one instance, the child being born living.

c. *Turning by one or both feet.*—This was performed 78 times under the following different circumstances:—

1. *Prior to the rupture of the membranes* in 39, ten being examples of twin-births. The author places the woman on her back, with the pelvis somewhat raised, and introduces the hand corresponding to the side to which the child's feet are directed, when this can be ascertained, but before the waters are discharged it is indifferent to an experienced practitioner which hand he employs. With the exception of two cases, in which hemorrhage from placenta prævia occurred, full dilatation of the os uteri was always waited for; and the membranes were preserved entire, when possible, until the hand had reached the spot where the feet were expected to be found. They were then broken, and where rapid delivery was required, as in placenta prævia, both feet were brought down; otherwise only one. In the latter case the labor was then left, for self-completion, unless the state of the pulsation of the funis or other dangerous circumstances called for haste. In all cases, however, the delivery of the head had to be assisted, viz., in 37 by manual interference (a modification of Smellie's method), and in 2 by the forceps. In the 37 cases, there were born 28 living (3 being stillborn but soon restored), 4 dead, and 5 macerated children. Of the 4 dead children, in 2 the birth had been preceded and accompanied by severe hemorrhage, in one there was eventration, and one had to be extracted from want of pains. Of the two children delivered by the forceps one was born alive and the other in a macerated condition. As unfavorable complications, there were two instances of narrow pelvis and three of placenta prævia.

2. *After the discharge of the liquor amnii.*—These cases were also 39 in number. The operation was rendered much easier by choosing the hand which corresponds to the side of the mother to which the feet are directed, and which when the waters are discharged could always be ascertained. In part of the cases it was introduced in the German method, by passing its volar surface over the abdomen of the child to the feet. In others, the French method was adapted, by which the presenting lateral parts are pushed further away, and the hands carried over the buttocks to the feet. From the former none of the ill effects said to result from compression of the funis or abdomen were found to arise. In difficult cases great are the effects of a proper position of the woman and choice of the hand, together with carefulness and steadiness in its introduction. By observation of these points the experienced accoucheur will often succeed after many failures on the part of others. Still, there are cases in which the observation of every precaution is not followed by success, as when the uterus becomes so closely bound round the child by continuous, tetanic contraction, as to forbid the passage even of a quill between them. There are cases, too, in which vain attempts at turning have so excited the uterus as to have aroused the most vehement pains, which follow one after the other in rapid succession. Who, in attempting, under such circumstances, to turn the fast-locked fetus, would not have the terror of rupture of the uterus before his eyes? It is in such cases that chloroform, or a mixture of chloroform and ether, is of unqualified utility, rectification often becoming possible during anaesthesia, when decapitation would be otherwise unavoidable.

Among these 39 cases of secondary cross-positions there were 10 cases in which turning took place *immediately* after the rupture of the membranes. Of

these, (1) There were 8 *accompanied by unfavorable complications*, viz., 2 with hemorrhage, one child living, the other dying; 3 with prolapse of the funis, 2 living and 1 dying; 1 with the induction of premature labor at the end of the eighth month, the child dying; 1 with very rigid genitals in a primipara, the child living; and 1 with a large-headed child, which lived. (2) The other 8 cases were *uncomplicated*, and all the children were born living. Altogether in the 16 cases, 10 of the children were born living, 4 came stillborn, one of these dying, and 2 were born dead. (b) Cases in which turning was performed *within the first half-hour* after the rupture of the membranes. These were six in number, in one of which only the child died. (c) Cases in which it took place at a *later period*, either because the patient came late under observation, or that the waters were discharged prior to the commencement of labor. Of these 7 cases, turning was executed in 4 in one hour, in 1 two hours, in 1 five hours, and in 1 twelve hours afterwards. Two of the children died. (d) In 7 cases the *membranes were ruptured before the commencement of the pains*. In these cases turning was accomplished after 9, 10, 23, 29, 37, and 64 hours, and in one case the exact time was not known, the child being dead when the patient was admitted. Among all these cases turning was not attended with any difficulty except in the first one. The cases under (c) and (d) sufficiently prove that nature usually leaves space enough after the discharge of the waters to admit of turning with success and without much difficulty, providing always that unsuccessful attempts have not excited the impetuous action of the uterus, which leads either to the death of the fœtus, or renders turning exceedingly difficult or impossible. (e) Cases in which turning was accomplished *after prior unsuccessful efforts*. Of these there were three, and the author relates two others which occurred in his private practice. Chloroform was employed in three of these, and turning would probably have been impossible without its aid. All the children were dead.

Summing up the results of the 85 cross-presentations treated by turning, we find that 66 children were born living (of these 9 were stillborn, 8 recovering and 1 dying), 13 dead, and 6 in a macerated state. Separating the macerated children, as already dead before the commencement of labor, the proportion of dead to the living children was 1 in 5. Of the mothers, 69 were in good health, 6 recovered after short illnesses, 1 was transferred to the hospital on account of metastasis, and 9 died. It is to be remarked, however, that the confinement of some of the fatal cases took place at a time when a bad form of puerperal fever prevailed. Of the entire number of 12,523 confinements which furnished these 85 cases, 546 women died of puerperal disease, and 73 were removed to the hospital on account of metastasis, eclampsia, &c. Hence the proportion of mortality in the whole was at least 1 in 22.

D. *Decapitation*.—This was performed in two instances, which are related, the children being dead and the shoulder being so much forced down, and the child so closely compressed by the uterus as to render attempts at turning dangerous. Braun's modification of Smellie's hook was employed.

ART. 127.—*Case of Turning by External Manipulation.* By DR. GRENZER.
(*Monatschr. für Geburts.*, Sept. 1857.)

The following case is from Professor Grenzer's report of the Dresden Lying in Hospital.

CASE.—A strong, well-built woman, æt. 32, who had borne three children happily, was brought in, in labor, on September the 7th. The abdomen appeared stretched more in the transverse direction. The os uteri was very little opened, and the right elbow of the child presented. Through the thin abdominal and uterine walls the head was distinctly felt in the left iliac fossa, the breech opposite in the right side of the uterus. The woman lying on her back, it was then attempted in the intervals of the pains to push the head downwards and the back upwards, whilst in the acme of the pains the uterus was merely compressed on either side. These manipulations were continued for half an hour, then the patient was made to lie on the left side, and in the place where the head was felt a hard pillow was pressed. On examination

the elbow was no longer felt, neither could any other part. In the mean time, the os uteri had expanded somewhat. The patient was kept in the same posture, and at 6 P. M. the head was felt by ballottement in the brim. At noon next day the os had fully opened, the liquor amnii escaped, and in one hour and three-quarters a living child weighing eight pounds, was born in the first cranial position. The mother did well.

ART. 128.—*Case of Cæsarian Section.* By Dr. GREENHALGH.

(*Proceedings of the Royal Med. and Chir. Society*, April 13, 1858.)

CASE.—A patient in her thirty-first year, who, during her eighth pregnancy, was attacked with symptoms simulating rheumatism, for which she had been treated. During the sixth month of utero-gestation, when she was first seen by the author, she was greatly emaciated and very decrepid, moving about her room with extreme difficulty, and by the aid of surrounding objects. From being five feet one or two inches in height she was reduced, in the space of a few months, to four feet two inches and three-quarters. Her urine was found to be loaded with neutral triple phosphates, which a variety of remedies failed to arrest. The nature of the case being suspected, a vaginal examination was instituted, which revealed a large amount of pelvic distortion, so great as to render delivery impracticable by any other means than the Cæsarian operation. At the full period of pregnancy, labor spontaneously set in; and notwithstanding every attempt was made to reach the os uteri by three of the eminent accoucheurs who favored the author with their counsel and assistance, their endeavors proved futile; consequently the operation was performed by the author in the ordinary manner, and a living child extracted. Although the patient was alarmingly reduced in health and strength, and a considerable amount of blood was suddenly lost, owing chiefly to the placenta being situated immediately under the line of incision through the uterus, still she continued to progress more or less satisfactory for fourteen days, when rupture of the transverse colon took place, attended with alarming prostration, from which, however, she rallied. Through this opening feces continued to escape into the abdominal cavity up to the time of her death, which occurred nineteen days after the operation. The author then detailed the results of the post-mortem examination, which showed extensive atrophy of the whole osseous system, besides far advanced fatty degeneration of the numerous tissues submitted to the microscope and chemical investigation. Especial attention was directed to the dried pelvis, the dimensions of which were detailed, and which, with the uterus, were placed before the Society.

ART. 129.—*Ill Effects of Chalybeate Waters upon Lactation.*

By Dr. STANISLAS MARTIN.

(*Bull. Gén. de Théor.*, Dec., 1857.)

M. Stanislas Martin observed at Chateaufort, in Auvergne, that gallinaceous and ruminant animals were exceedingly fond of the ferruginous waters, but that these exerted the mischievous effect of drying up the milk of the cows. Wishing to see whether this effect extended to the human subject, he induced a young mother to make use of some of the strongest of these waters several days; and the result was that if she continued to drink them all her milk would have disappeared. From this fact, among others, he cautions practitioners against prescribing ferruginous substances for nursing women, and when their employment seems clearly indicated.

ART. 130.—*Of the Use of Belladonna in arresting the Secretion of Milk.*

By Mr. R. O. BLYTHMAN.

These cases furnish additional evidence in favor of the idea that belladonna has a real power of arresting the secretion of milk.

CASE 1.—In July, 1857, I was sent for a considerable distance from my own home to a neglected case of milk abscess, of very formidable size. My

patient was a healthy young woman; this was her first confinement. A free incision was made from the most dependent part, and a large quantity of pus and milk evacuated. On my second visit, the breast was much improved; the secretion of milk however, was as active as ever. Extract of belladonna was applied around the nipple night and morning. The secretion of milk stopped at once; and the breast soon healed. The application had no effect on the healthy breast, with which my patient continues to nurse her infant.

CASE 2.—In September, 1857, Mrs. S—, the wife of a clergyman, caught cold six weeks after confinement, by remaining a considerable time in a wet grass field. As soon as she returned home, she felt shivery and cold. The left breast became hard, inflamed, and very tender. My advice was not sought until the expiration of ten days. The breast was much enlarged and tender, with a succession of hard tumors, each threatening a separate abscess. No milk could be extracted from the nipple. The belladonna extract was applied as in the former case. Secretion was at once checked, and my patient soon recovered. She still nurses on the right side.

CASE 3.—Mrs. O—, a most intelligent patient of mine, lost her infant from convulsions, on November 9th, 1857. A few days before its death, she bruised her left breast, which was overcharged with milk at the time, owing to the inability of the infant to take it. The day after its death, the breast was much swollen. No milk could be extracted by the breast-pump. A tumor could be distinctly felt at the upper part. The extract of belladonna was applied to both breasts. The secretion of milk was immediately stopped. In two days my patient was safe. Her own remark was, that she never felt the draught in either breast after the application of the extract.

ART. 131.—On Animal Substitutes for Woman's Milk. By Dr. ROUTH.

Asses' milk was usually said to be the best substitute. That this was not the case the latest analysis proved. It contains less casein certainly than cows', but much more sugar than women's, and less butter. Looking to the disadvantages resulting from a diet too exclusively saccharine, in developing scrofula, the great advantage of fatty substances in cell-development, and the large excess of salts, which even made asses' milk aperient to adults, he had no reason to believe in its efficacy. His own experience was opposed to it, and until further experiments proved its efficacy, he was bound to reject it as a substitute of value for long-continued use.

Goat's Milk.—The evidence in favor of this milk pointed to it as a better substitute than asses' milk. Some analyses of goats' milk were nearly identical with those of human. Its objection—the smell and taste of hircic acid—could be avoided by cleanliness and choice of species; and although usually richer in casein, sugar, and butter than human milk, as a rule, yet by modifying the character of the goat's food (for instance, large admixture of beetroot), a milk might be produced which would greatly resemble human milk. Goats were also more hardy than cows, and experience in Ireland and elsewhere had shown that children thrive well on it; indeed, in Ireland, children often suckled the goats directly tamed for the purpose.

Cows' milk was the variety best known in England. Normally, it was too rich in casein and butter, and too poor in sugar, as compared with human milk. But it was often adulterated—in London and Paris chiefly by water. Dr. Routh dwelt at length on this species of adulteration, quoting from Drs. Hassall, Sanderson, R. D. Thompson, and Hillier, and other authorities, from which it appeared that the quantities of watery adulterations varied from 25 to 50 per cent. It was almost invariably acid in stall-fed cows. He then entered at length on the shameful practices adopted in feeding and keeping cows, and the results on the cows themselves, and the neighborhood of their stalls, in bringing about disease. Instances were given from the works of Drs. Normandy, Hassall, and Hillier, on the subject. He entered also at length on the results of feeding cows on different alimentary substances, both upon the cows themselves and the milk supplied; and here, as in the case of goats, he showed that if cows were fed on beetroot in excess, the milk supplied closely resembled human.

The next point of inquiry was, how to correct poor milk for infants. Here he dwelt upon the results obtained by Dr. Merel of Manchester. Such milks required larger dilution, because more indigestible, even than rich milks. But it was best to dilute with a thin decoction of arrowroot, for the mechanical advantages of the solution. At the same time lime-water, to correct acidity, peppermint or dill, with a trace of opium, would allay irritation, and prepare a child for digesting cows' milk. If the milk were good, the excess of casein could be removed by addition of prepared rennet, and milk sugar added to bring up the sugar to the normal quantity, with a little cream. This was Mr. H. Lobb's improvement on Professor Falkland's plan. Where good milk could not be preserved, as at sea or elsewhere, then the use of Moore's or Grimwade's desiccated milk could be tried. Amongst other animal compounds, simple cream and water was oftentimes a great service. A raw egg, beat up with water and sweetened with milk sugar, and Liebig's beef tea, were often used with advantage. These substances generally were rich in phosphoric acid and chloride of potassium, two salts which were of immense importance in nutrition; the former as entering into the composition of the sub-phosphate of soda, so essential to the blood, to the brain and bones; the latter, in excess in milk over and above chloride of sodium, was, like fat, essential to cell-development. These facts, Dr. Routh thought, justified him in concluding that feeding by hand, if carefully carried out, would be far from so injurious as believed. The chief points are—

1. The warmth of the surface of the child to be maintained.
2. The food to be taken in the semi-erect position.
3. If milk were given, that the cows or goats should be kept clean, and fed according to rule.
4. If this were too rich, it should be corrected by Mr. Lobb's method, or if too poor, by that of Dr. Merel.
5. That amongst other animal compounds, cream and water, egg, or Liebig's beef tea, would often be very useful.

(B) CONCERNING THE DISEASES OF WOMEN.

ART. 132.—*On so-called Hysterical Pain.* By Dr. INMAN.

(*British Med. Journal*, Jan. 9, 1858.)

Dr. Inman has most serious doubts whether the idea of "hysterical pain," as contradistinguished from pains common to all ages and sexes, ought not to be expunged entirely from our medical writings. In his opinion this pain is only the pain of fatigued muscles, and the persons who suffer from it are precisely those whose muscles are weak and readily fatigued.

ART. 133.—*Laudanum Dressings in Painful Affections of the Uterus.*

By M. ARAN.

(*Bull. de Thérap.*, t. liii., 1857; and *Medical Times and Gazette*, April 3, 1858.)

M. Aran in this paper describes a means of locally applying laudanum, that he has found useful in several hundred affections of the uterus. The object being to retain this substance in contact with the os uteri and upper part of the vagina, a magma is produced by means of an inert powder. The cervix being exposed by means of the speculum, from thirty to fifty (and sometimes more) drops of laudanum are allowed to flow to the bottom of the instrument. After bringing the fluid in contact with the surface by alternately opening and closing the valves of the speculum, a few drachms of starch are placed at the bottom of the instrument by means of a spoon or spatula, so that the laudanum may become absorbed by this, and, this taking place very speedily, the speculum is then withdrawn. While this is doing the starch is kept in vagina by charpie or cotton, which, indeed, may be left at the entrance of the vulva, if the size of this leads to the fear that the substance will fall out when the patient stands erect. Absorption takes place slowly, one hour, and sometimes three or four

hours, being required before the first assuaging effect is perceived. No ill effects, whether from excess of narcosis or disturbance of digestion, have been observed. The application may be repeated every other day, or even every day, the patient in the interval well washing out the previously applied magma.

This dressing is applicable to those affections of the uterus and genital organs, which, after active inflammation is subdued, still manifest a painful hyperæsthesia. But it is especially useful in the hyperæsthesia, which sometimes accompanies uterine deviations, or the morbid adhesions contracted by the uterus with the other pelvic organs. In these cases of chronic cellulitis, as also in chronic inflammation of the ovary and the tube, it does good service by allaying morbid sensibility. In such cases a precise indication may be often sought for in vain, nothing indicating inflammation or congestion, or these having been subdued by local bleeding. A few laudanum dressings quickly bring relief, and that not for some days only but for entire months. "I have found another morbid occurrence remarkably modified by these dressings, viz., a special condition of the entire uterus, frequently met with in women of a certain age, and which perhaps is in some cases connected with the formation of small fibrous tumors. In these patients the finger and the speculum fail to detect any sign of inflammation or congestion; and yet so excessive is the morbid sensibility, that a false step or violent shock excites sensibility on every side. In other words, it is a most complete state of hystericalgia; a few laudanum dressings soon allay this sensibility and pain, the patient exchanging in a few days a state of extreme suffering and uneasiness for one of remarkable comfort." M. Aran has made but little use of this means in ulcerated cancer, fearing hemorrhage from the employment of the speculum; but in non-ulcerated cancer and epithelioma, and in fibrous tumors, this means has afforded more marked relief than any other he has tried. It does not cure these patients, but to afford them relief is to do much.

ART. 134.—*A Case of Complete Inversion of the Uterus, of twelve years' duration, successfully treated.* By DR. TYLER SMITH, Obstetric Physician to St. Mary's Hospital.

(*Proceedings of the Royal Med. and Chir. Society, April 24, 1858.*)

The author commences this paper by referring to two cases of inversion of the uterus, published in the "Medico-Chirurgical Transactions," in one of which extirpation was practised with recovery of the patient, while in the other, treated by palliative measures alone, death ensued eighteen months after delivery. He brought forward the present case as illustrating a new principle of treatment. Hitherto the cases in which reinversion has been accomplished have been chiefly limited to cases of recent origin. It has been held that unless the inversion could be reduced soon after the accident, there was little hope of accomplishing it, death generally occurring at periods varying from a few months to five or six years. The operation of extirpating the uterus by ligature is a very serious one. Of thirty-four cases of extirpation, twenty-seven recovered and seven died; in nine of these cases the inverted uterus was mistaken for polypus. The subject of the present case was delivered, at the age of eighteen, of a first child, and inversion occurred at that time, but was not suspected by her attendant. When, at length, an examination was made, a tumor was found in the vagina, but the opinion of those who saw the case was divided between polypus and inversion. Flooding continued to a greater or less extent for nearly twelve years, during which time she was never for a single day free from sanguineous discharge. All attempts at replacing the uterus by those who considered it a case of inversion failed. The patient was sent to the author of the paper in September, 1856, by Mr. Griffith, of Port Madoc, North Wales, under whose care she had been for a short time. The symptoms of anæmia existed in the most marked degree. She was subject to epileptiform convulsions and frequent faintings. The drain of blood seemed to replace the other secretions to a considerable extent. She passed very little urine, and frequently went twenty-four hours without micturition. On examination, the uterus was found to be completely inverted, the neck of the uterus

and the os uteri being very small and rigid. The author determined to attempt its reduction by continuous pressure, with the intention of dilating or developing the os and cervix uteri. With this object the right hand was passed into the vagina night and morning, and the uterus squeezed and moulded for about ten minutes at a time. Chloroform, which had been found so useful in cases of inversion of shorter standing, was not used, because of the feeble state of the heart and circulation, and the comparative absence of pain. In the intervals between these manipulations, in which the author was assisted by Dr. Vernon, the vagina was distended, and firm pressure exerted upwards by a large air pessary. These means gradually dilated the os uteri to such an extent as to allow of the partial return of the uterus, and on the eighth day from the commencement, complete reinversion took place. The subsequent recovery of the patient was perfect. She has since menstruated regularly, and is in excellent health. The author combats the prevailing notion as to the immobility and unyielding condition of the os uteri in long standing cases of inversion, alluding to the readiness with which the uterus increases, diminishes, and alters in size, under appropriate stimuli. No amount of force will suddenly reduce a case of chronic inversion, but he believes that by air or fluid pressure, so as to convert the fundus and body of the uterus into a wedge, the os uteri may be slowly enlarged in any case, so as to admit of reinversion. Since the presentation of the paper, the author has been informed that the patient is now in the fifth month of pregnancy. The paper concluded by a reference to other conditions, in which air or fluid pressure had been of service, such as the arrest of flooding in abortion, placenta prævia, the expansion of the pelvis in cases of high deformity from mollities ossium, and the induction of premature labor.

ART. 135.—Obstinate Menorrhagia arrested by Iodine Injections. By Dr. SAVAGE.

(*Lancet*, Dec. 5, 1857.)

Dr. Savage relates two cases of obstinate menorrhagia, in which tincture of iodine was injected into the uterine cavity with the most successful results. In one of these a strong solution of tannin and alum had been injected before having recourse to the iodine, and the bleeding had been arrested for a time. Three days before injecting the iodine, the interior of the uterus was scraped out by Récamier's curette (an operation which gave rise to no pain), and the injection was twice repeated, at intervals of three days, when the hemorrhage had ceased entirely. Each time three drachms of the official tincture of iodine were used. In the other case the injection consisted of two ounces of the same tincture and an equal quantity of water, and the recovery was equally rapid and perfect. Before resorting to the injection, Dr. Savage dilated the cervix uteri freely, and this he considers to be an important part of the treatment.

ART. 136.—Obstinate Menorrhagia cured by Injection of Tincture of Steel.
By Dr. BRESLAU, of Munich.

(*Monatsch. für Geburtskunde*, Oct., 1857; and *Med.-Chir. Review*, Jan., 1858.)

"Dr. Breslau's case of injection of liquor ferri sesquichlorati shows the efficacy of this treatment in certain cases of excessive uterine hemorrhage. A woman, forty-five years old, had worn a pessary for a long time, which she had given up on account of pain and hemorrhages. Examined, there were found five grape-shaped polypi around the os uteri, with ulceration. These were removed by Siebold's scissors, and potassa fusa applied to the ulcerations. The hemorrhages remitted somewhat. The uterus was, however, entirely bent upon itself, and the menses returned in great excess. The cavity of the uterus was somewhat enlarged. The return of the menorrhagia reduced the patient to an extreme degree of anæmia. Ergot of rye failed to effect any contraction of uterus or arrest of flooding. Two possible conditions presented themselves to Dr. Breslau. 1st. The five polypi attached to the cervix favored the presumption that there existed a similar warty hypertrophy of the lining membrane of the uterus. 2d. There might be a destructive ulcerative process of a malignant character going on in the same structure. In the first case, the

curette of Récamier seemed indicated, in order to scrape the uterine membrane clean from the presumed excrescences. In the second case, it seemed necessary to bring a caustic and styptic agent in direct contact with the diseased membrane. To answer this latter indication, he selected the liquor ferri sesquichlorati of the Bavarian Pharmacopœia. Having first straightened the retroflected uterus by the sound, and inserted an elastic catheter as far as the fundus, he injected one ounce and a half of the liquor ferri, diluted with an equal quantity of water. The injected fluid was retained in the uterine cavity for a minute and a half by the pressure of the fingers at the os around the catheter. During the operation, the patient felt a dull labor-like pain, which lasted for two hours. The hemorrhage, which had hitherto been unintermitting, now suddenly stopped, and was not renewed. After some days, brown, crumbling clots were discharged, but no fluid blood. Seven months afterwards there had been no return of menorrhagia. The patient menstruated regularly every twenty-one to twenty-four days; and, through internal administration of steel and quinine, recovered robust health."

ART. 137.—*Cupping the Interior of the Uterus.* By Dr. HORATIO R. STORER.

(*American Journal of Medical Science*, Jan., 1858.)

This operation was conceived and first practised by Dr. Simpson, of Edinburgh, but as yet it does not appear to have been made public in any manner.

"The instrument used," says Dr. Storer, "identical save in coupling with one made for me at Edinburgh, in 1854, and now also exhibited, is from the hands of Messrs. Codman and Co., of Tremont street.

"Its construction is sufficiently simple. An air-pump, small but powerful, and a perforated tube, itself of sufficient calibre to contain several drachms of blood, yet not too large to enter the os and cervix uteri; its orifices of a size to escape easy clogging with mucus or clots of blood, and yet too small for extensive laceration, or hernia of the mucous coat, and its axis curved to correspond with those of the uterus and vagina. Its passing to a sufficient depth within the uterine cavity is ensured, its entering too far is prevented, by a ring of gutta percha, bevelled above for more perfect closure of the os, and adaptable to any case by remoulding. The exact position of this ring is to be determined by previous careful use of the uterine sound. Like that of the intra-uterine pessary, the point of the stem should almost, but not quite, reach the fundus uteri. By this precaution, danger is avoided, and a much more thorough effect rendered probable.

"To the manner of coupling I am inclined to attach some importance. In the Edinburgh instrument, the pump is screwed to the upper portion of the lower tube, while in the other I have joined them by caoutchouc pipe. The liability of a screw-thread to become worn, and the less chance of violence in case the piston should play stiffly, if the coupling, while perfectly tight and fitting, were yet elastic and flexible, occasioned this modification.

"I have used the cup in other cases than those reported, in every instance with the effect of inducing the sanguineous discharge, and I have never seen from it any permanently disagreeable result. Its power upon the nervous system is, however, at times so decided, that its use should be with care. In one case, where the introduction of the instrument had been painless, the first play of the piston occasioned instant and alarmingly profound syncope.

"To the microscopist, this instrument might frequently prove of use, by affording an easy means of procuring healthy or diseased secretions directly from the cavity of the uterus.

"Whether in practice the cup will be found to answer any other indication than that for amenorrhœa already instanced, as for relieving ordinary congestive and inflammatory attacks, either of the uterus itself, Fallopian tubes, or ovaries, remains yet to be seen."

CASE 1.—Catharine —, of Roxbury, æt. 30, and unmarried, applied for treatment at the Eustis Street Dispensary, February 2d, 1857.

Catamenia reported as entirely absent for seventeen years; having commenced at 12, continued regular for one year, and then on her taking cold, permanently ceased. A general leprous eruption, which immediately followed this suppression, has been constantly present since, disfiguring the patient and otherwise causing her much discomfort.

Somewhat dyspeptic and anæmic; costiveness; addicted to headache, flatulences, nausea. Old ulceration of tonsils. Vaginal leucorrhœa.

She was at first mainly treated for the disease of the skin. The diet was carefully regulated and the bowels kept moderately open. Iodide of sulphur was used locally, Fowler's solution by mouth till specific effect; in vain.

The protoiodide of mercury was then given, though all syphilitic taint had been denied. It was pushed till great irritability of the bowels was produced, though it had been combined with an opiate; patient not improved. The mercurial was subsequently resumed and continued till April 1st, when the gums were sore. It was then stopped, and the arsenic again commenced.

In the mean time, the catamenial disturbance had not been lost sight of. There was never present any decided menstrual molimen; it was therefore impossible, save empirically, to time the attempts at assisting nature. There was, it is true, pain in the head and back, but irregular and uncertain, while the leucorrhœa presented no monthly or periodic increase.

On March 14th, alteratives and tonics having been given for six weeks, with aloetic purgatives, hot hip-baths, &c. &c., from time to time, without benefit either to skin or uterine system, a vaginal examination was made. The abdomen had been previously ascertained to be free from enlargement or tenderness. The uterus was found depressed and slightly retroverted; its cervix elongated, but of small diameter; os almost impervious. The sound entered with difficulty about two inches.

Sinapisms to the breasts were now ordered, in addition to and with the emmenagogues already employed.

March 19th.—No effect produced other than that patient has so well tested the mustard as to have blistered both breasts. These abrasions were treated by collodion.

April 1st.—A succession of flexible metallic bougies, an eighth to a fourth of an inch in diameter, were passed through the cervix uteri.

4th.—A galvanic steam-pessary, an eighth of an inch in diameter, introduced into the cavity of the uterus.

12th.—Pessary still worn. Patient cupped at and below sacrum.

May 8th.—No effect having been produced, the intra uterine air-pump hereafter to be described was applied, and by it 3ss of blood drawn from the interior of the uterus. This was early in the morning; the discharge continued throughout that day and night.

June 6th.—Patient reports herself as in all respects better. Air-pump again applied, and flow again produced; this time more readily than at first.

When last seen, early in July, the patient had still further improved in general health and spirits, while her skin had begun to assume a more natural hue and feel.

CASE 2.—Margaret —, æt. 25, from Winchester, entered the Lying-in-Hospital, under my charge, October 10th, 1856.

Patient unmarried. Catamenia never appeared till her 21st year; discharge always very scanty, ceasing and reappearing at intervals during one or two days, and always attended with excessive local pain which continued throughout the period. Recurrence of menses irregular, frequently passing five or six weeks, as is at present the case.

Dyspeptic, anæmic, hysterical; for which general treatment, hydrocyanic acid, cannabis indica, &c. &c.

Upon examination, some tenderness of abdomen, which was retracted. To the touch, the os seemed almost impervious; cervix somewhat elongated; uterus depressed. For this a ring pessary had formerly been introduced with some relief. Ordered aloes, hot hip-bath, sinapisms to breasts.

October 12th.—No appearance of menses. Uterine sound introduced two inches, and followed by smallest sized galvanic stem-pessary.

The next morning the menstrual discharge was established, not very abundantly, but comparatively more so than ever before, and with very much less pain. It continued for two days.

22d.—To-day a series of four metallic bougies passed; all, even the largest, with ease.

November 15.—Bougies repeated. Yesterday and the day previous, galvanic pessary. To-day menstruates as before, and almost without pain.

The flow continued two days; and then, on November 17th, patient discharged from the hospital, much relieved.

In the spring of the present year, I was again consulted by this patient. The improvement above noted had continued for some time, and then had yielded to a recurrence of all the former distress. I therefore applied the air pump, the menses being overdue, and produced a free sanguineous discharge. This was several times repeated, at the proper intervals, in July for the last time, always with relief to the usual symptoms, and apparently with permanent benefit to the general health.

ART. 138.—*Autopsy of a Woman whose Uterus had been removed thirty years previously.* By Dr. G. S. GODDARD.

(*Nederlandsch Lancet*, and *Dublin Medical Press*, March 3, 1858.)

In the anatomical collection at Rotterdam a remarkable specimen is preserved; it is the uterus of a woman, in whom inversion of that organ had occurred in the year 1821, probably in consequence of forcible separation and removal of the placenta. After repeated but fruitless efforts to reduce the uterus, and when the symptoms had assumed a more and more threatening aspect, the part was tied by Surgeon Nortier thirteen days after delivery; and eight days subsequently the tumor below the ligature was removed with a pair of scissors; in the evening of the following day the ligature lay loose in the vagina, and exhibited the small opening through which the pedicle had passed. A month later the woman had quite recovered, menstruation did not recur, and the sexual passion was wholly extinguished. In the preparation the uterus is seen, of the size of the head of a child at full term, with an internal rough, flocculent surface, which, at the right side, in the neighborhood of the fundus uteri (where the placenta was attached), has an opening with uneven edges, of about an inch and a fifth in circumference. Less extensive on the under side, this saciform body ends with an opening of about two and a third inches. On the left side of the fundus portions of the Fallopian tube and of the round ligament, both, as well as the uterus, still enlarged, are seen; while on the right side the round ligament appears to be partly destroyed, and a much larger portion of the Fallopian tube is evidently also destroyed in its whole length. The woman died in 1850, in consequence of an acute disease, in which the genital organs were not involved. On opening the body the internal genitals, on a superficial inspection, presented a tolerably natural appearance, except that the right broad ligament was rather tense, giving rise to a degree of obliquity; there was a great accumulation of fat in the connective tissue around the vagina and between the laminae of the broad ligaments, in which no cicatrices, but only modified plaiting, were to be seen. The folds of the mucous membrane of the vagina were very strong and irregular; the vagina itself was much shorter than usual. Of the uterus only the cervix remained; the cavity of the latter was scarcely large enough to contain a lemon pippin, was very pointed, and was about three inches in length; the palmæ plicatæ were very strongly marked; the walls, which were thicker than usual, terminated as cut off; on the surface looking towards the cavity, was a white, firm, cellular, intervening substance, a couple of lines in length, and particularly dense on the right side, which as cicatrix had filled the space left open in the operation, and as well as the truncated substance of the uterus, had become covered with peritoneum. The free extremities of the Fallopian tubes were normal; each terminated in a cul de sac, the right was shorter than the left, and with the ovary was drawn strongly downward by a fold of peritoneum. The round ligaments were in great part deficient on both sides; the right was the shorter, and was surrounded with

much connective tissue. The left could be followed a little further. The ovaries were more atrophied than even the woman's time of life should lead one to expect; the ligament of the right ovary was very small; that of the left still in a great measure existed. On either side there was one of those pediculated hydatid-shaped bodies, which Kobelt and Follin regard as remnants of the ducts Mulleri in the corpus Wolfianum; the right possessed a short and broad, and the left, on the contrary, a long pedicle.

ART. 139.—*Three cases of Vesico-Vaginal Fistula.* By J. BAKER BROWN, F. R. C. S., Surgeon-Accoucheur to St. Mary's Hospital.

(*Medical Times and Gazette*, April 17, 1858.)

CASE I.—Mrs. K—, æt. 22. I was called to see this lady by Mr. Kisch, who gave the following history: About six weeks ago she was confined of her first child. The labor was very long and tedious, and the head remained in the pelvis for many hours without making any progress whatever, so at last the forceps were applied, and after a good deal of difficulty the child was abstracted. She progressed without any unfavorable symptom till the sixth day, when she perceived that her urine was constantly escaping, without her being in any way conscious of it, and that it did so in all postures equally. This continued without alteration, although her general health rapidly improved, and she was able to sit up in perfect comfort in every other respect at the usual period.

Upon examination, it was discovered that there was an opening, which would admit a middle sized bougie, situated just at the junction of the bladder with the urethra.

The edges had not become at all callous, but were soft and yielding. Every drop of the urine escaped through this fistula.

February 2d, 1858.—I proceeded to operate, assisted by Dr. Priestly and Messrs. Kisch, Nunn, and Philip Harper. The patient being placed in the usual lithotomy position, and a full-sized wood bougie being introduced into the bladder through the urethra, so as to raise the fistulous opening well into sight, and to give a little support while the edges were being pared, I proceeded to split up the coats of the bladder, first dissecting a narrow strip of mucous membrane from the edges of the fistulous opening, and turning the so dissected edges, without removing them, back into the fistula, thus obtaining a raw surface. Having done this, I inserted three double silk sutures at regular intervals through the split surfaces, and then tied these over two pieces of fine elastic bougie about an inch in length, and by this means the two raw surfaces were brought into close, equal, and exact apposition, and by careful manipulation no portion of mucous membrane was allowed to get between. The parts were then covered with dry lint, and the usual bent catheter, with an India-rubber bag attached, introduced, and left in the bladder.

Two grains of opium were given as soon as the effects of chloroform had a little subsided. The patient continued nursing her baby.

On February 8th I found that the same sutures had cut themselves out; when I syringed the vagina, which I did every day, they came away in the basin. There had been not the slightest escape of urine up to this day. She was therefore allowed to leave off the catheter. In four days—viz., the 12th—she was allowed to pass the urine herself every three hours. In two days she found she could go five, six, or eight hours at night, and then pass it naturally, none escaping involuntarily; but on beginning to dress or suckle the child, some escaped from the urethra, which seemed to come away from want of controlling power. On carefully watching the parts where the fistula was, and requesting her to cough, I could see a drop or two percolate through the united surfaces, just like the escape of perspiration from the pores of the skin. I applied caustic to this part, as the mucous membrane of the vagina had not yet covered over the parts operated on.

Thursday, 18th.—The nurse saw a small escape from the vagina; but from that time till the 22d there had been no escape, except occasionally in the day a drop from the urethra, although the patient walked about the room.

March 2d.—There has been no escape, and, on a most careful examination,

I found there was no sign of an opening; and, indeed, the vaginal mucous membrane had completely covered over the parts united, so as to leave no trace of the fistula. She walks about up and down stairs, and the urethra has perfectly recovered its normal action.

CASE 2.—Elizabeth T—, æt. 36, from Cirencester, was admitted into Boynton Ward in February, 1855, and gave the following history: In November, 1854, she was taken in labor with her first child, and after forty-eight hours instruments were used, and she was delivered of a stillborn child. She went on pretty well until about the ninth day, when a good deal of pain in micturition came on, and she continued in great pain throughout the next three days, when suddenly, on the twelfth day, she felt something give way, and her urine escaped through the opening and she became quite easy. From that period all her urine escaped in this way. On examination per vaginam, I found a large opening extending transversely completely across the centre of the bladder, and so wide as to admit easily two fingers. The destruction of tissue was so great, and the fistula so gaping, as to render any present attempt at closing it quite out of the question. I therefore determined to adopt a plan recommended by Jobert de Lamballe, viz., to dissect the neck of the bladder from the pubes and its descending rami, thus allowing the anterior half of the bladder to go backwards, and thus relax the fistula. Great success followed this operation, and in April, 1855, I pared the edges and brought them together by Sim's mode of treatment. But little success followed the operation, and she was allowed to return into the country for the improvement of her general health, and in April, 1856, she was delivered of a living child.

On December 19th, 1856, she was again admitted into Boynton Ward, and I performed Bozeman's operation with the result of closing eight-tenths of the opening.

In five weeks I again operated, with but little success.

In six weeks more I operated, and again with little success, as great sickness always followed the use of chloroform.

So, in three days, I again operated without chloroform, and the result was the closing of a third of the fistula. After this she returned into the country.

December 7th, 1857.—She was again admitted, and I performed Bozeman's operation, with the result of a further reduction in size of the fistulous opening. She then went again into the country.

On February 15th, 1858, she was admitted into the Boynton Ward, and stated that since the last operation she had been able to retain the urine during the night, and some even during the day, whilst she was sitting quite still.

17th.—I carefully denuded the edges of the fistula, and slit up the coats of bladder all round, and then brought the raw surfaces together by silk sutures and quills.

20th.—She felt the sutures give way, and the urine make its escape.

24th.—She was taken into the operating theatre for the ninth time, and without chloroform I revived the edges, and, passing three silver wire sutures, closed them down with Bozeman's button.

25th.—No escape.

26th.—No escape. Some headache, and slight pain in the vagina.

27th.—Nurse thinks a little urine escaped last night and again this morning, but I examined and found that it evidently came from the urethra. The sphincter having relaxed from the presence of the catheter.

March 4th.—Bowels were well moved. No escape of urine. Catheter removed.

6th.—The button was removed, and the whole opening was found beautifully closed and quite firm.

10th.—On most careful examination, the fistula was found quite closed, and she can pass and retain her urine as well as she ever could before the lesion, and she is consequently in good spirits and very grateful.

CASE 3.—Mrs. N—, Rotherhithe, æt. 28, consulted me in March, 1858, and gave me the following history: "Four years and a quarter since was in labor of her first child from Wednesday evening until Sunday morning, when Mr. Poete was called in, and delivered her with forceps of a stillborn child. Di-

rectly after she was made comfortable in bed she found the urine to escape through the vagina, and from that time it has always escaped except when lying on her back. Three months after the accident she went into Guy's Hospital, and was there for nine weeks. She then went to a hospital for diseases of women, and was there recommended a large blister to be put on her back so as to make a sore; but as her husband thought that could not heal the hole in her bladder, she did not apply it, and left off attending the hospital. Mr. Peete had repeatedly advised her to see me."

On examination, I found a small fistulous opening at the fundus of the bladder, close up to the os uteri, which was also much torn. The fistulous opening was about the size of an ordinary pocket-case director.

On March 3d I proceeded to operate, assisted by Messrs. Hume, Peete, Philip, Harper, and my son, Arthur Brown. Placing her on her knees and face, without chloroform, I carefully pared the edges, removing as little mucous membrane as possible, and then performed Bozeman's operation; but instead of bringing the edges together transversely, as usual, I brought them together horizontally. The bent catheter, with bag attached, was then introduced, and opium given.

4th.—No urine has escaped.

6th.—All well, except sickness caused by the opium, which is therefore discontinued.

7th.—No escape. Bowels opened by an enema.

9th.—Still sick. A dose of calomel, followed by a Seidlitz powder.

11th.—Quite well. No sickness and no escape.

13th.—I removed the button to-day, and found the opening perfectly and entirely healed.

ART. 140.—*On Coagula formed in the veins during the puerperal state, and their occasional transference into the pulmonary artery.* By Dr. GRAILLY HEWITT.

(*Lancet*, Dec. 19, 1857.)

The various morbid appearances presented by the veins and their contents in cases described as "phlebitis," have been always objects of much interest, and up to within a very recent period were taken as evidence of the existence of inflammatory action in those vessels. The author considers that the researches of Virchow conclusively proved that the appearances in question were due to the formation of coagula in the veins, and the subsequent transformation through which these coagula had passed. According to the views of Virchow, the study of the changes hitherto spoken of as phlebitis, is in reality the study of the "thrombus," as the coagulum is termed, and of its metamorphoses. In applying these views to the consideration of those cases of disease of the veins which are apt to occur after childbirth, and taking, with Virchow, the starting point to be the formation of the coagulum, it was necessary to inquire, *What are the circumstances which may lead to, or favor, the formation of coagula in the veins during the puerperal state?* Amongst these are enumerated:—

1. The large amount of fibrin in the blood, both positively and relatively, during pregnancy; a condition predisposing to coagulation; and possibly, also, certain other morbid conditions of this fluid, as uræmia, &c.

2. The mechanical effects of the pressure of the uterine tumor, which, leading to congestions of certain parts—the vagina, rectum, lower extremities, &c.—might favor coagulation; also, the impediment to the descent of the diaphragm leading to distension of the right heart and other parts of the venous system.

3. Pressure, unusual in amount or duration, on the large venous trunks of the abdomen, produced by the head of the child in its passage into the pelvis, the head being too large, or the passage contracted.

4. Deficient contraction of the uterus and of the large venous plexuses situated near or (Virchow) *after* delivery.

5. The most important, perhaps, the presence of the "physiological coagula," as they may be termed, which close up the uterine veins at the point of at-

tachment of the placenta, and which must extend a variable distance, and have a variable size according to the degree of uterine contraction.

6. The morbid conditions of the blood liable to be produced after delivery, owing to the occurrence of hemorrhages, and other causes.

A description is then given of the morbid appearances usually observed in the veins after childbirth. Affections of the veins generally occurred in cases where some of the causes just described as leading to coagulation had been present. In most of these cases the veins first affected were those leading from the uterus and ovaries; the coagulation begins in the veins of these parts, and travels onwards towards the heart. The coagulum always terminates, according to Virchow, whose description is in conformity with those of Dr. Robert Lee and others on this point, in a rounded extremity, which projects a little *beyond* the next entering vessel, and by further deposition of fibrin the clot extends. The coagulum also travels backwards, occluding after a time the veins which enter an already blocked-up trunk. The iliac, femoral, and other veins of one or both sides may thus become occluded by a coagulum extending from the uterine veins of the same side, producing at this stage the disease called "phlegmasia alba dolens." The "physiological" coagula may then give rise to coagula of a pathological character, other circumstances favoring the production of the latter being present, or certain states of the uterine surface following delivery may occasion a like issue of the case. The clot once formed undergoes two kinds of changes. It shrinks, becomes decolorized, adherent, and, with the vein, is reduced to a cord-like substance (adhesive phlebitis); or it softens, breaks up, and the result is, the formation of a fluid in many respects resembling pus (suppurative phlebitis). The outer non-softened portions of the clot in the latter case remain as false membranes adherent to the vessel wall. The affections of the veins in the puerperal state are only peculiar in respect of their causes; the coagula, once formed, are liable to the same kinds of transformation as in other cases. The observations of Virchow respecting the constant presence of the "continued congestion," are of especial interest in relation to the *occasional passage of portions of altered coagula into the pulmonary artery*. This continued portion projecting into the still patent vessel, undergoes, but more rapidly under certain circumstances than the other parts, the "thrombus metamorphosis." It becomes adherent to one side of the vessel, and the projecting part may, at a certain stage of its metamorphosis, be broken off and carried away by the current of blood into the pulmonary artery. Death, more or less sudden, and attended, according to Virchow, with symptoms of a peculiar asphyxia, followed the passage of these altered coagula into the vessel, or its branches. Dr. Simpson has collected nine cases in which death, more or less suddenly, occurred a few days after delivery, apparently brought about by the obstruction of the pulmonary artery by transformed coagula introduced from the veins. Probably death more often occurs from this cause than is generally imagined, the cause being overlooked. Lastly, the author concludes that the pulmonary artery might be occluded by clots liable to be formed in puerperal women reduced by hemorrhages, &c., these coagula not having existed as such for a sufficient time to have undergone the transformations previously alluded to, and not having been formed quite in the same way. These clots, at first perhaps small, would increase rapidly by further accretion of fibrin around them, and finally obstruct the pulmonary arteries to such a degree as to produce death.

ART. 141.—*Aphthous Fungus on Female Nipple*. By Dr. KÜCHENMEISTER.
(*Wochenbl. der Gesell. der Aertze zu Wien.*, June 29, 1857; and *Med.-Chir. Review*, April, 1858.)

The author, whose authority regarding parasitical formations is so well known, entering upon the question whether the *oidium albicans* takes possession of the nipple of the nurse, shows that the sore nipple may be the seat of this fungus. He gives a case in which the aphthæ were found on the cracked nipples of a person who had been sucking an aphthous child. He quotes at length the microscopical description of a fungus found by Hoffman and Leuco-

kart, which had a double form, one having all the characters of an oidium, and the other showing slightly septate threads, which in their lateral branches developed sporangia (sporidia), out of which the spores proceed. He states his opinion that the structures known as aphanes exhibit mostly two forms of fungus; one truly forming sporangia (sporidia) with spores, and one only forming coccidia; the latter exhibiting what was ordinarily termed oidium albicans. This oidium he considers to be only an undeveloped form of the other, which is probably a leptomitum.

(c) CONCERNING DISEASES OF CHILDREN.

ART. 142.—*Three Cases of Infantile Apoplexy.* By Dr. JOSEPH H. WYTHES, of Port Carbon, Pennsylvania.

(*North American Med.-Chir. Review*, Jan., 1858.)

CASE 1.—On the evening of May 31st, 1852, I was called to see the child of Mr. Shaefer, about 3 years old, who was complaining of pain in the left ankle. It was not swollen or discolored, but the pain seemed excessive, especially on motion. The parents supposed it to have sprained its ankle while playing on the step. I ordered a stimulating liniment, and, as it had been costive, a dose of castor oil.

The next morning I was informed that the child had been found dead, lying in the bed between its parents, without awaking either. On examination I found the wrists and ankles of the child strongly contracted; the left leg, the arms, and the back considerably discolored with dark purple blood; and the left leg slightly swollen. As it was the wish of the family to have a post-mortem examination, I called in Dr. James Parker to assist me.

On removing the calvarium, which was done with as little violence as possible, an extravasation of blood was observed between the cranium and dura mater, perhaps half a fluid ounce. The vessels of the membranes were much injected, and the posterior part of the septum had a large clot of blood in it. The membranes were also in many places strongly adherent. The white substance of the brain was full of bloody dots or points, with the appearance of infiltrated blood in the posterior lobes, particularly on the right side. The right ventricle had in it a clot of blood, with serum.

The viscera of the chest appeared healthy. The liver was much enlarged, and contained a few cysts. The stomach was disproportionately small. The appearance of the intestines was generally healthy, but about one-half of the ileum was distended with gas. A few tubercles were observed in the mesentery.

CASE 2.—Nov. 4th, 1855, was called to see the child of S. Landis, who had died suddenly. I officiated at its birth exactly three months previously. It was a vigorous male child, and had always been in good health, with the exception of occasional attacks of colic, for which no medical attendance was deemed necessary. On Saturday night, Nov. 3d, the family retired to bed at 12 o'clock, and the child seemed as usual. At 5 or 6 o'clock in the morning the mother laid him off her arm, as she supposed, asleep. After breakfast, wondering he slept so long, she went to rouse him, and found him dead.

When I first saw him, about 10½ A. M., he was quite cold. The muscles of the hands and feet were quite contracted, but particularly so on the left side; the mouth was drawn slightly awry; and the whole posterior surface from head to foot was of a purple hue. I suspected cerebral disease, and asked for a post-mortem examination, which was granted. I was assisted by my brother, Dr. Wm. W. Wythes, Dr. G. Brown, and in the latter stages by Dr. J. S. Carpenter, the last-named gentleman having arrived too late to inspect the brain.

The vessels of the arachnoid and pia mater were considerably congested, and the whole cerebral substance was softened, being about the consistence of melted butter. A little serum was observed at the base of the left hemisphere of the cerebrum, but nothing abnormal in the ventricles. The membranes of the cerebellum and medulla oblongata were strongly congested.

The lungs, heart, and abdominal viscera were quite healthy, though the latter were fully distended with gas.

CASE 3.—Dec. 20th, 1855, was called to make a post-mortem examination of the child of J. R., aged three months, which had been found dead in its bed. Was assisted by Dr. G. Brown.

Muscles of hand and feet much contracted. Foam issuing from mouth and nose. Face purple. Purple congestion of the skin of the back and limbs, probably from gravitation.

The membranes of the brain healthy, but its substance much congested. On slicing, it seemed full of bloody dots. A small clot of blood was found in each ventricle. Lungs congested. A serous effusion observed in the pericardium. Liver large, and intestines full of gas. Stomach and bowels otherwise healthy.

ART. 143.—*On the lately prevailing Diphtheritic Affection.*

By DR. WILLIAM CAMPS.

(*British Med. Journal*, March 20, 1858.)

This affection has been variously designated—as croup, croupy disease of the throat, malignant sore throat or cynanche maligna, diphtheritis or diphthérite, throat affection, prevalent sore throat, &c. Under one other of these terms, there could now no longer be any doubt that a disease lately prevailed, and did still exist, with more or less intensity, in various parts of the United Kingdom, including the metropolis. The public health authorities had, in their periodical documents, of late solicited information respecting it, under the term diphtheria. Dr. Camps states that his attention was directed thereto, in the first instance, by noticing in one of the quarterly returns of the Registrar-General an unusually large number of deaths from croup, as having occurred in a rural district, with the population and locality of which he was tolerably well acquainted.

It was well known that a form of pharyngeal inflammation had been investigated and described some years ago by M. Bretonneau, of Tours, and that to this disease he gave the name of *diphthérite*. It was probably from the analogy observed between the disease lately prevailing here and that described by M. Bretonneau, that the former was now commonly spoken of as diphthérite, diphtheritis, diphtheria, or diphtheritic disease. M. Bretonneau and some other French authorities appeared to have regarded it as almost, if not absolutely, identical with the ordinary inflammatory croup of this country; and Dr. Watson, in his lecture on croup, appeared to regard Dr. West as holding the opinion that diphthérite is a variety of croup—an opinion in which Dr. Camps did not concur. Whether in this country or in France, this disease had heretofore appeared rather as an epidemic than as a sporadic affection; and the author was of opinion that many of the cases of throat disease which proved so fatal not long since at Boulogne, might have been cases of diphthérite. Here it assumed quite an epidemic character; and in all the severer and fatal instances of the disease in this country that had come to the author's knowledge, such cases had occurred in tolerably rapid succession as to time, and in tolerably close proximity as to place. He hesitated to commit himself without reserve to the question of its contagiousness, although he believed that practitioners in France entertained that opinion.

The type of the disease in its severer forms, he considered to be essentially asthenic or adynamic; and, therefore, attended with more or less languor, depression, and diminution or impairment of vitality, thus indicating most clearly the appropriate mode of treatment. Of late, in many of the metropolitan dispensaries and hospitals, stomatitis had been very prevalent; and in the judgment of the author, there existed between stomatitis and the diphtheritic affection, now under consideration, a very close analogy or resemblance. He regarded the former as the shading off into a milder form of the latter, yet both as the result of the same morbid general cause; so that the difference between the two should be considered as one of degree, rather than of kind. The tendency to the production of plastic, pseudo-membranous exudations, as observed

in these diseases, was one mode of denoting the existence of an adynamic or low form of inflammation; and the correct appreciation of this condition was of the highest importance in the treatment.

A description of the disease, as detailed by M. Bretonneau, was then briefly adverted to by Dr. Camps, who then stated that he was indebted to Dr. H. W. Fuller, of St. George's Hospital, for having drawn his attention to a record of cases of diphtheritis that had occurred in 1849 at Haverfordwest, in the practice of Mr. Brown, of that place, and which that gentleman had communicated to the "Medical Times and Gazette." Mr. Brown in that year had had no fewer than two hundred cases, forty of which had proved fatal; and in some of these death had ensued in a few hours from the seizure, others lingered on for some days. In its course, Mr. Brown said that some of the little sufferers appeared to get through it easily; while others lingered for weeks with slight but deceitful symptoms. The treatment adopted by Mr. Brown was referred to by the author at some length. He affirms that he did not lose a patient in whom he succeeded in establishing ptyalism. That gentleman advocated the topical application of solution of nitrate of silver; in regard to constitutional treatment, he depended upon calomel in combination with ipecacuanha, in doses varying from half a grain of each, every four or eight hours. He found, moreover, emetics of great service in the first stage of the disease; they then always relieved the distress in breathing, carrying away large quantities of mucus. The only cases that proved fatal under his care were those in whom the pharynx and the larynx were simultaneously affected. The post-mortem examination of all the fatal cases that had come within the author's knowledge, showed the pharynx, tonsils, larynx, trachea, and upper part of the bronchi, to be more or less coated with plastic, pseudo-membranous exudation. Reference was made by the author to the occurrence of the disease in various parts of the country; namely, in Essex, Norfolk, Lincolnshire, Staffordshire, Worcestershire, Lancashire, Devonshire, and in the metropolis.

With reference to the cause or causes of this and similar diseases assuming an epidemic character, it was usual to regard such as the result of some specific epidemic influence or agency, operating upon the human system through the blood. This explanation, or attempted explanation, the author stated, was by no means satisfactory to his own mind, however much so it might be to the minds of others.

From all the facts or particulars which Dr. Camps had been able to collect respecting this disease, he was disposed to draw the following conclusions:—

1. A disease very analogous to, if not identical with, that described by M. Bretonneau as diphthérite, had existed in this country, and had prevailed with more or less intensity during the last few years.

2. This disease was mainly, if not essentially, of an asthenic, adynamic type; and characterized in the severer cases by the formation of plastic pseudo-membranous exudations.

3. This disease was primarily pharyngeal as to its seat, and not laryngeal, except secondarily, and by complication; thus differing anatomically from croup.

4. Its difference from stomatitis was a difference of degree or intensity, rather than a difference of kind; and that one chief point of difference from the malignant sore throat, consequent upon scarlatina, consisted in the tendency to the formation of plastic pseudo-membranous exudations.

5. In many instances this disease possessed the characters of an epidemic disease.

6. Its low adynamic type clearly indicated the mode of treatment to be adopted; which, in the author's judgment, should be both topical and general. The topical consisting of free applications of a strong solution of nitrate of silver to the parts affected, composed of from one scruple to two drachms of the nitrate to one ounce of distilled water; or similar applications of chlorine or hydrochloric acid; the general treatment comprising the repeated administration of chlorate of potassa, with chlorine, or a combination of cinchona bark, or its alkaloid salts with the mineral acids; and in the severer cases, calomel in repeated doses, so as to produce ptyalism. Emetics in the early stages of

the disease have been given in some cases, and with good result. In addition, the vital powers of the system must be well sustained by liberal administration of wine, stout, beef-tea, and other invigorating means.

ART. 144.—*On Cholera Infantum.* By Dr. E. H. PARKER.

(*American Medical Monthly*, May, 1857.)

In a paper read before the New York State Society, February 4th, 1857, Dr. Parker discusses the following propositions, as those generally held by the profession, or, at least, as generally given by our systematic writers:—

1st. "Cholera infantum is a disease peculiar to this country, though not entirely unknown in Europe.

2d. "That cholera infantum is almost entirely confined to large cities, and is rarely seen in the country.

3d. "That the symptoms, course, and pathology of the disease entitle it to a separate place in our nosological tables.

4th. "That the treatment is to be distinct from that of diarrhoea on the one hand, and dysentery on the other.

5th. "That perhaps the most alarming symptoms are those of hydrocephalus, occurring in the advanced stages."

With reference to the *first* proposition, he quotes descriptions by Dr. West, of London, of an affection called *inflammatory diarrhoea*, and by M. Bouchut, of Paris, *entero-colitis*, either of which would answer for a description of the cholera infantum of this country.

The *second* proposition he deems incorrect, and adduces facts obtained from the mortuary statistics of the last century to show that the affection is as fatal in the country as in the city.

As regards the *third* proposition, the writer arrives at the conclusion that it is impossible to draw a line, on the one hand, between cholera infantum and simple diarrhoea, and, on the other hand, between cholera infantum and enterocolitis. He claims, therefore, that cholera infantum is, in fact, a name given to a particular condition arising in other diseases.

The foregoing conclusion respecting the *third* proposition involves a denial of the *fourth*; for if there are no peculiar symptoms, course, and pathology, there is no separate and peculiar treatment.

In commenting on the *fifth* proposition, the writer calls attention to the distinction between the *hydrocephaloid* and the *hydrocephalic* condition; the former, as described years ago by Marshall Hall, and more recently by Gooch and West, being the condition occurring in the course of cholera infantum, and demanding the treatment due to anæmia and exhaustion, and not to encephalic inflammation.

In conclusion, the writer presents the following propositions as expressing his views, in contrast to the propositions already given as expressive of the opinions more commonly entertained.

"1. The condition to which the name of cholera infantum is given is not a separate and peculiar disease, but a collection of symptoms attendant on certain stages of other diseases.

"2. This condition is recognized by European authors in their treatises, though very properly it does not receive a separate title.

"3. That the principles of its treatment are the same as those of diarrhoea and enterocolitis.

"4. That hydrocephalus is rarely, if ever, an attendant or sequent of it, but that the hydrocephaloid disease is very usual."

ART. 145.—*Modification of the Operation for Imperforate Anus.*

By Mr. REDFERN DAVIES.

(*Edinburgh Medical Journal*, March, 1858.)

The following remarks are appended to a case in which the ordinary operation for imperforate anus was performed:—

"In the '*Archives Générales*' for the months of May, June, and July, in the

past year, is a translation of an essay by Dr. Herman Friedberg (*agréé* to the Berlin Faculty of Medicine), on artificial anus. The subject is discussed at length; it is the most complete *résumé* of cases to be met with in any language; and, from the high character of the author of the paper, much weight is attached to his doctrines and practice. After commenting upon the advantage of an opening in the perineum, as opposed to one in any other site, M. H. Friedberg goes on to say, that simple opening of the rectum through the perineum ought in the present day to be completely abandoned. 'I do not know,' says he, 'a single case in which an opening by a trocar has preserved life permanently, when the closed extremity of the rectum has been distant from the normal site of the anus;' and, furthermore, he cites in corroboration of his opinion the words of M. Roser, who 'has not found any detailed account, not even one, which tends to show that any decided improvement has been obtained by the employment of the trocar, when the rectum has been absent a distance of one inch.' The operation that he strongly contends for is that of Amussat, viz., the bringing down the gut when an opening has been made in it, and stitching it to the outlet in the perineum. In support of this, he adduces two cases in which the rectum was distant one inch and a half and three inches respectively (they, however, died, the one in six, and the other in nine months); together with the four successes of Amussat, which, as Erichsen observes, singularly all occurred at Brest. Certainly, the professor does not prove much by numbers. The advantages that he claims for it are beyond doubt good and substantial: viz., that there is a mucous membrane lining the whole tract of the canal; that the evacuations are more easily accomplished; that the natural tendency in canals not so provided to gradually contract, and finally become completely closed, is prevented; that the irritation and danger arising from the contact of effete matter with tissues not intended for such contact is also obviated. Against so formidable an array of arguments in favor of this line of conduct, the reasons that induced me, at the time when the rectum was opened, to forego even the attempt to bring it down were—that I deemed the distance, two and a quarter inches, at which it was situated from the external opening, to be so great, as to preclude the possibility of so doing. Bound down as the rectum is by its fold of peritoneum, the meso-rectum, I feared to encounter the almost certain dangers of peritonitis, or pelvic cellulitis, which must inevitably be the probable consequence of the laceration of its connective tissue, to permit of its descent for such a distance. Besides, at such a depth, how great an uncertainty there must be as to what the forceps might seize hold of. A free outlet having been established, the exigencies of life were provided for, and the vital functions were, for the time, fully as well performed as they could have been, even had the gut been brought down. So far the operation consisted in one of simple puncture; and had it been intended for it to remain as such, the somewhat violent and dogmatic flats of the two German *savans*, quoted a few sentences back, would be, as I shall directly show, not absolutely justifiable. One case by Schleiss (in 1853) is narrated as successful; and up to the present hour its result has not been impugned. Another, where the rectum was absent about two and a half inches, I had the opportunity of witnessing while in Paris last year; the case was under the care of M. Maisonneuve, and presented to the Académie de Chirurgie, also reported in the 'Gazette des Hôpitaux' (*vide* Nos. 22 and 53, 1857). There is at present—aged some forty years—a gentleman in this town who was so operated upon, and who walks about a living monument of its success. The fact, therefore, that in certain isolated cases a fortunate issue results is certain; and it is also as certain that they are very, very much the exception to an all but universal law, that children born with imperforate anus die. To what, then, shall we attribute this result? The child is born, to all appearance, healthy, save this defect; which only kills by its mechanically preventing the exit of effete matter, and its attendant consequences. It would, therefore, appear that to overcome this difficulty would be to solve the question; and doubtless such will be the result when the operative procédé shall be improved, and so in proportion will lives be saved, save in those cases where the vital powers of the child are below par (as in part evidenced by the con-

genital deformity), and of themselves unequal to carry on life, much less when this embarrassment is added to them.

"With all due deference, therefore, to the opinions of others, and in the hopes that it will receive whatever of attention it may merit in their hands, I beg to lay before the opinion of my more experienced professional brethren the following modification in the operative interference usually adopted in these cases, which I had intended, had the patient survived a sufficient length of time, to carry into effect. As far as can be judged by the evidence of the published cases, death is the consequence of different causes, according as the rectum is, or is not, brought to the opening of the wound. If it is, death ensues from the injuries inflicted by so doing. If it is not, death ensues, but secondarily, in consequence of the difficulty to defecation being only partially removed. I would propose, therefore, to combine these two procédés, and endeavor to obtain, by extending the operative measures over a considerable time, immunity from the evils of both: viz., supposing, in the first instance, that an opening had been made (as was done) into the rectum, nature being relieved, had not other influences intervened, the child would have lived *pro tem.*; but then comes into consideration the subsequent difficulty in passing the stool, owing to a gradually narrowing of the passage. All this is said to be due to the mucous membrane not being continuous with the outlet.

"To remedy this, therefore, when the parts have recovered from the effects of the first operation, introduce a pair of forceps, and, seizing hold of the lips of the opening into the rectum, endeavor to bring it down, not by one vigorous and decisive holding on by the forceps, and by main force bringing the gut to the external orifice, but by gently and repeatedly soliciting its descent, introducing the forceps at certain intervals, and gradually endeavoring to accomplish the end. If the rectum can be so moved from its position, and be brought lower down in the pelvis (and so by repeated attempts it has been proved) by one forcible extension, and even that sometimes crowned by success, how much more likely is it that success should attend the proceeding, when, by the almost imperceptible tractions made upon it, the great causes of failure, viz., peritonitis and pelvic cellulitis, would be removed, owing to the small amount of disturbance that would take place in the soft parts. Although, as far as I am aware, this procédé by successive stages has never before been broached in any writings on the subject, the idea was taken from a case reported in the 'Lancet,' vol. i. p. 493, 1846, in which an incision was made into the perineum for a distance of three inches; and on the second day an attempt was made, by gently pulling, to draw down the gut, which was not, however, fastened to the external opening. One month afterwards the child was doing well.

"I am fully aware that there is a vast deal of essential difference between this procédé and the one I advocate; nevertheless, accomplishing the end by successive stages, is in this case shadowed out, and will, I trust, assume a definite status in surgery."

REPORTS
ON THE
PROGRESS OF THE MEDICAL SCIENCES.

January—June, 1858.

THE intention of the following Reports is to pass in review the principal additions to each department of Medical Science, which have been placed on record during the preceding six months. It is not contemplated that they should be confined exclusively to the notice of what is new; any fact or doctrine which may be considered practically useful, will, although not strictly novel, be regarded as worthy of commemoration. It must be obvious to all who are aware of the immense mass of information which is almost daily put forth by the medical press of this and other countries, that the notice of every subject would be an impossibility. It therefore devolves upon the writers of each Report, to select only such articles for retrospection as may possess superior recommendations, either of an intrinsic character, or in relation to the main end and aim of all medical knowledge—the alleviation of suffering and disease.

I.

REPORT ON PRACTICAL MEDICINE, ETC.

Hygiène; or, Health as depending upon the Conditions of the Atmosphere, Foods, Drinks, Motion, and Rest, &c. By JAS. H. PICKFORD, M. D. (London, Churchill, 1858.)

DR. PICKFORD is endeavoring to supply a deficiency in the medical literature of this country by the publication of a comprehensive work on *hygiène*. He professes "to present to his professional brethren, to the medical student, and to the public at large, a plain and faithful transcript of accurate research, observation, and experience; a simple and exact statement of facts and admitted truths, together with such inferences and deductions as the subject may appear to warrant and demand." (P. x.)

The first part of this work, which is now before us, "embraces the physical of the atmosphere, the seasons, temperature, rain, winds, and pressure; the respiration of plants and animals, the circulation of the blood, the chemistry of respiration, and animal heat; infection, contagion, malaria, sewerage, drainage, ventilation, and climate, in connection with disease." Each subject is treated in a series of short paragraphs, which aim at axiomatic brevity—a style which is not only unsuited to the majority of the topics which come under the head of *hygiène*, but which makes the book almost unreadable, and leads too frequently to the statement of mere and often doubtful opinions as ascertained facts.

The strictly hygienic portions of the chapters on the Atmosphere, Seasons, Weather, Circulation and Respiration, are very scanty, and imperfect, and the physical and physiological details are generally given in an isolated fashion, and without any explanation of the mode in which they bear upon the subject of *hygiène*, hence the book will be useless as an introduction to the study of that branch of medical science. Moreover, a singular confusion of thought prevails throughout the work. We are told, for example, in § 241, that "the atmosphere abounds with electricity, which it derives from the thermo-electric agency of the earth;" but, in § 243, we are informed that "the sources of electricity in the atmosphere are to be found in the chemical changes which often accompany the evaporation of water and the respiration of plants, and in combustion." In § 342 it is asserted that the inhalation of ozone produces "inflammation of the mucous lining of the bronchi and air-passages, catarrhs, coryza, possibly 'hay-fever,' intense pneumonia," &c.—an unsatisfactory and as yet unproved theory being thus given as an ascertained fact. In the chapter on Seasons it is stated, § 400, that "the termination of this (winter), and the commencement of the spring quarter, are most favorable to the development of scarlet and typhus fevers;" according to § 418, "typhus fever commences in May;" in § 442, it is asserted that "typhus fever and diarrhoea prevail throughout the summer quarter;" and in § 460 it is stated that "the common current of this (the autumn) quarter, is most favorable to the development of diarrhoea, and scarlet and typhus fevers."

In the chapter on Infection, Contagion, and Malaria, we are told (§ 913) that "by *contagion* we understand the transmission of an infectious malady from the sick to the healthy, by pollution of the atmosphere, by the effluvia of emanations from, or by the exuviae of, their bodies; or, by means of *fomites* imbued with the specific poison; or, by immediate or mediate contact. In the latter

case, the humidity of the atmosphere becomes a medium of contact." It is stated, in § 914, and illustrations are given in support of the statement, "that it seems to be a general law of animal nature, at least among the *mammalia*, that the accumulation and stagnation of the exhalations of the living body produce disease;" but, in § 915, we find the extraordinary conclusion, that "*contagion* may therefore be designated a specific virus originating within the body." (!)

Other instances of confusion of thought occur in the chapter, as for example, in §§ 921 and 922, but we pass on to the conclusion which Dr. Pickford arrives at in reference to vegetation and malaria. He considers (§ 1021) that it is "demonstrated that the *absence of vegetation may be received as a tolerably sure indication of the presence of malaria*, whilst, on the other hand, it has been already shown that the *absence of malaria may be fairly inferred from the presence of vegetation*. Nevertheless, we are subsequently told (§ 1092), "of the salutary effects resulting from the admission of free ventilation to our military stations in the West Indies, by the cutting down and removal from their immediate vicinity of the superabundant vegetation, rank grass, and brushwood, in which malaria is prone to become entangled."

The section on Drainage, and the chapter on Ventilation, teach neither the principles nor the practice which should guide us in endeavoring to obtain good drainage and effective ventilation, and the chapters on Climate and Disease, are of a character with the rest of the book.

Fibrine in the Blood; its Significance examined in reference to Disease. By T. INMAN, M. D., Physician to the Northern Hospital, Liverpool. ("Liverpool Medico-Chirurgical Journal," January, 1858.)

The evidence contained in this paper goes far to establish Simon's conclusion that the fibrine of the blood is a result of retrograde metamorphosis, and more closely allied to excrementitious than to nutritious products; and in that way to necessitate an important change in the matter of treatment—for if fibrine is not nutriment, if it is not fuel, and if it is merely excrementitious—ashes rather than fuel—then the increased quantity of fibrine in inflammation is no longer an argument that the blood is too rich in inflammation and that depletion is demanded, but just the contrary.

In the present paper Dr. Inman proposes to inquire—1. What analyses have taught us respecting fibrine in individuals in a comparative state of health. 2. What observation gives us respecting fibrine under certain conditions. 3. The relation of fibrine to diseases. 4. The conclusions to which the foregoing considerations lead.

1. Beclard has shown ("Gazette Médicale de Paris," January 22d, 1848) that there is in man a larger proportion of fibrine in venous blood than in arterial, differing in this from previous observers. This at once suggests the notion that fibrine is a result of "waste" of the tissues—that it is an effete product. In the lower animals, analyses show on an average an equal quantity of both arterial and venous blood. The quantity of fibrine is increased by fasting. Thus a horse had, when first examined, 5.1 parts in 100 of fibrine, and after four days fasting had 9.0 parts. The quantity of fat in the blood was also augmented from 2.2 to 4.8 per 1000.

Our next inquiry branches out naturally from this. If it be true that the fibrine is a quasi excrementitious substance, how does it happen that it has such a character for rapid organization. It has always been assumed that conglutabable lymph, as it is called, owes its characters to the fibrine which it contains. But is it so? All mere assumptions are to be mistrusted. Is not this one? Where do we find the largest amount of pure fibrine in the body under any circumstances? In an aneurismal sac, and sometimes in the substance of an enlarged spleen. Leaving the latter, we turn to the former, and ask what is the history of the fibrine there? We are almost all of us familiar with its appearance. Do we find it laminated, as if deposited as sand or mud would be from a current debouching into a lake; or do we find it organized and united into a homogeneous whole, resembling false membrane, cellular tissue, &c. Dr. Inman is

not aware of a single instance in which the fibrine has become organized, though in constant contact with blood. Pursuing the same train of thought, we ask, What becomes of the fibrine in the aneurismal sac, where the artery has been tied, and the aneurism begins its process of cure? In some cases the fibrine, after a time, acts the part of an irritant, and produces abscess; and in others the more fluid parts are gradually absorbed, leaving the fibrine as a dense mass behind. It rarely disappears *in toto*, and never forms false membrane or areolar tissue.

Again, where large quantities of blood are effused into the pleural or scrotal cavity, the fluid remains for years without any attempt at organization, and even when blood is effused into the parenchymatous parts of the body, the fibrine undergoes no structural change. Surely if fibrine were as prone to organization as it has been supposed to be, we should scarcely have an extensive bruise occurring without the structure of the part undergoing more or less permanent alteration.

It is then tolerably clear, that the lymph thrown out during inflammation is not pure fibrine, and that the remarks applicable to one are not applicable to the other.

We next turn to the young of animals whose growth is rapid, and in whom there is little if any excrementitious matter for a considerable period. There is no fibrine in the egg; there is materially less fibrine in the blood of the umbilical artery of the foetus than in the venous blood of the mother. Its blood-globules, too, are in excess, and we may state as a general rule, deducible from all the analyses we have been able to consult, that where there is a diminution in the normal quantity of the fibrine, there is always an increase in the red corpuscles. The blood of a puppy a day old is richer in globules, and poorer in fibrine, than one three months old.

A Day.		Three Months.	
165 globules	.	.	97
0.2 fibrine	.	.	2.4

There is some difficulty in obtaining the normal quantity of blood in an adult, as it varies materially according to circumstances; but upon taking the mean of a great many analyses, we may set down the high average to be 2.5, two and half parts per 1000 in man, and 2.3 in woman; the quantity in the former being possibly larger on account of greater wear of the system. The globules are, in the same manner, estimated at 132 per 1000 in man, and 120 per 1000 in woman.

The proportions may vary as follows, without any apparent variation in health:—

	AVERAGE.		MAXIMUM.		MINIMUM.	
	Man.	Woman.	Man.	Woman.	Man.	Woman.
Globules	132	120	186	163	112	70
Fibrine	2.5	2.3	4	3	2	1.8

In these cases we have sometimes excess of globules, and diminished fibrine, and sometimes excess of both. It is possible that accidental circumstances, such as fatigue or exertion, may explain this.

Let us, however, ere we give details about the human blood, take some notice of that of the horse. The average quantity of fibrine in its blood is five per thousand when in health; when poor, weak, decrepid, fit only for the knacker, it rises to eleven per thousand, and we have before shown that a fast of four days would increase it from five to nine parts. In our own species we find the same thing—the weaker the individual, the greater amount of fibrine.

Tabulating the results according to the relative maximum increase of the fibrine—

<i>Fibrine increased.</i>	<i>Per cent.</i>	<i>Corpuscles diminished.</i>	<i>Per cent.</i>
Leucocythæmia (one case)	1100 .	.	.
Cancer	600 to 700 .	.	74
Phthisis	250 to 580 .	.	12
Acute rheumatism	190 to 550 .	.	30
Pneumonia	500 .	.	80
Bright's disease	450 .	.	53
Cholera	440 .	.	0
Glanders	400 .	.	10
Bronchitis	300 .	.	30
Convulsions	250 .	.	25
Scarlatina	240 .	.	.
Sea-scurvy	240 .	.	50
Leucocythæmia, general	230 .	.	50
Hemiplegia	200 .	.	.
Typhus	150 .	.	0
Erysipelas	150 .	.	25
Quinsey	125 .	.	25
Lead cachexia	120 .	.	70
Pleurisy	100 .	.	.
Puerperal convulsions	100 .	.	.
Puerperal phlebitis	90 .	.	40
Peritonitis	90 .	.	40
Pregnancy	90 .	.	.
Spinal irritation	90 .	.	.
Variola	80 .	.	0
Chlorosis	75 .	.	80
Disease of the spinal cord	70 .	.	.
Starvation in horse	80 .	.	.
Old age and weakness	200 .	.	.
Ophthalmia	} all under . 60	.	.
Dilatation of heart . . . . .		.	.
Pletbora . . . . .		.	.
Carditis . . . . .		.	.
Serofula . . . . .		.	.
Intermittent fevers . . . . .		.	.
Rubeola	}	.	.
Epilepsy . . . . .		.	.
Purpura hæmorrhagica. Fibrine diminished 60 per cent.		.	.
Increase of fibrine compatible with health, 60 " "		.	.
Decrease " " " 50 " "		.	.

This table affords us a very striking arrangement of diseases, and one which necessarily leads us to inquire, Is there anything really to be learned from analyses of the blood? Can the conclusions drawn from them be trusted, and, if so, what are the conclusions to be drawn respecting the increase of fibrine under certain conditions?

Assuming the fact that the analyses are to be trusted, we find the very remarkable circumstance, that the quantity of fibrine in the blood attains its maximum in "leucocythæmia," in some cases of cancer and of phthisis, and that in the latter the amount is signally diminished by cod oil; and we further find that iron has a similar effect in chlorosis.

Without further inquiry, we should hence at once conclude, that excess of fibrine could not be a proof of increased strength. Next to these come acute rheumatism and pneumonia, diseases which have for a long period been considered more æsthenic in their type than any other, and requiring the most active and depressing methods of treatment; and after these come again Bright's disease, glanders, cholera, and bronchitis, in which the prostration of strength is extreme.

The first facts show us fibrine in excess, marking debility and a rapid waste of tissue.

The second show us fibrine in excess, in diseases supposed to be marked by an excess of energy.

The last confirm the first.

We are driven then to conclude, either that rheumatism and pneumonia are not such athenic complaints as they are supposed to be, or that deductions drawn from the excess of fibrine in the blood are valueless.

Assuming that the deductions are not valueless, and that the first conclusion is the most probable, we find in the same category with pneumonia and acute rheumatism, Bright's disease, cholera, glanders, bronchitis, convulsions, scarlatina, scurvy, leucoeythæmia, typhus, erysipelas, quinsey, cachexia from lead, pleurisy, chlorosis, and starvation; and in another category, ophthalmia, rubella, intermittent fevers, scrofula, carditis, purpura.

Looking to these masses, we conclude that there is a greater waste of tissue in the first category than in the second.

We find in all, that the effect of bleeding has been to increase the quantity of fibrine, and all observers are now willing to allow that bleeding has a more powerful effect in debilitating the system than any other treatment.

We turn to Paget's "Lecture on Surgical Pathology," and we find, vol. i. p. 399, "All the changes I shall have to describe are characteristic of defect of the normal nutrition in the parts; they are examples either of local death, or of some of the varieties of degeneration, modified and peculiarly accelerated by the circumstances in which they occur. The degenerations are observed most evidently in the process of softening and absorption of inflamed parts." Again: "The degeneration which would be progressive in a healthy state, but which would then be unobserved, being constantly repaired, is still progressive in the inflamed state of the part, and is the more rapid because of the suspension or impairment of the proper conditions of nutrition." When we consider how exceedingly appropriate these remarks are to the rapid disintegration and softening of the lung in pneumonia, we may well fancy that we can see in this the reason for so large an increase in the fibrine of the blood. The lungs are consuming themselves with great violence, and the ashes are thrown into the circulation.

It is not difficult to draw a comparison between acute rheumatism and phthisis. In both the maximum of fibrine is very high, and the minimum is far above the average of health. In both, sweating is a marked and almost characteristic symptom, and we may add, that in the worst cases of each respectively, the perspiration is the most excessive. In phthisis, as the patient improves in health, the perspirations abate, and the same is unquestionably true in rheumatism.

But it is in the treatment of these diseases chiefly, that we fancy we can see the proofs that pneumonia and acute rheumatism are not diseases of a athenic origin and character.

In the first place, pneumonia chiefly attacks those already debilitated by natural or accidental causes.

In the second, there is every reason to believe that pneumonia was at one time vastly more fatal than it is at present, and that the difference in the mortality was due entirely to the venesection and other excessively depressing remedies that were employed in days gone by.

"A doctrine so new as the one which I have adopted," Dr. Inman proceeds to say, "is doubtless one that will startle many of my readers, and they will naturally be inclined to inquire if I have taken the trouble to read the arguments on the other side. I can assure them I have—and have been no little astonished to find how completely void they are of reason. One author regards fibrine and coagulated lymph as synonymous; another, ignoring the analyses made by Simon, Bequerel, and Rodier, Andral, and Gavarret, puts down the fibrine in certain diseases at a high or low figure, as best suits his argument. Even Williams, in his 'Principles of Medicine,' is singularly inconsequential, and heaps up assertions, quite indifferent to the nature of their proofs. Dr. Carpenter treats the notion that fibrine is an excrementitious product or something analogous thereto, with such supreme contempt, that though he deigns to notice John Simon's observations, because it is a man of mark that

makes them, he does not think it worth while to weigh his own reputation against the argument he opposes. Any one, indeed, of ordinary grasp of mind, reading the review of Simon's book, and the extracts from it which are cavilled at ('Brit. and For. Med.-Chir. Rev.,' vol. vii. p. 473, and adopted again in 'Manual of Physiology,' second edition), would see that the objections, by their very feebleness, were additional proofs of the profoundness of Simon's views.

"But these littlenesses are to be expected as long as persons allow themselves to argue from gratuitous assumptions.

"The first assumption in the history of fibrine was, that inflammation implied excess of power—an increased action in the vessels, &c.; 2dly, that plethora was the most common cause of inflammation; 3d, that the blood, in phlogoses, was richer than healthy blood; 4th, that there was a tendency to the outpouring of lymph, because the blood was so rich in it; 5th, that lymph and fibrine were the same things, and as fibrine was found in reality in larger amounts during pneumonia and other inflammations, the whole of the preceding assumptions were looked upon as facts!

"To these were soon added many others, as for example—1, bleeding is of essential importance in pneumonia and inflammation generally; 2, it does good, because it removes so much fibrine from the system; 3, mercury does good, because it diminishes the fibrine in the blood; and as patients get well after being bled and salivated, these assumptions passed as facts.

"Next came the assumption that fibrine was metamorphosed albumen, a step in advance towards organization, as was proved by its greater abundance in arterial than venous blood.

"By and by, however, the chemist who aims at exactness, blows all or most of these assumptions to the winds. He shows that the arterial blood is not richer than the venous, in fibrine; that fibrine and lymph are not identical; that fibrine is proportionally increased by venesection; that inflammations may exist without a greater amount of fibrine in the blood than is occasionally found in health; that the greatest amount of fibrine exists in the weakly, and those undergoing a rapid disintegration of tissue, as in fasting. A more mature observation shows that plethora scarcely ever produces inflammation, but that poverty of blood does so frequently. With so many a rude shock to some medical assumptions, no wonder that the stability of others has begun to be examined; no wonder that many a thoughtful mind is asking of experience to tell it, whether mercury deserves all the credit it has got.

"Other assumptions connected with fibrine were—1, the bleeding diathesis arises from deficiency of fibrine in the blood; 2, all the diseases in which there is a tendency to bleeding must be marked by deficiency of fibrine; 3, fever is a disease where there is great diminution, as evidenced by the tendency to disintegration of the tissues in that complaint. A more cautious inquiry has dispelled all these notions. Hemorrhage is as common where there is a vast increase of fibrine as where it is a little deficient; and in fever there is more frequently an increase than otherwise; while in scarlatina, a disease more septic even than typhus, the amount is at least double."

On the Changes which have taken place in the Constitution of Fevers and Inflammations in Edinburgh during the last forty years. By R. CHRISTISON, M. D., Professor of Materia Medica in the University of Edinburgh. ("Edinburgh Medical Journal," January, 1858.)

Dr. Christison holds that the abandonment of bloodletting as a remedy in almost all fevers and acute inflammations, is owing, not as Dr. Bennett and others maintain (c. "Abstract," XXV. p. 201, and XXVI. p. 233), to an improved acquaintance with disease, by which the practice of bleeding is shown to be unnecessary, but to a change in the constitution of disease—a change by which this once useful practice has ceased to be necessary. This is no new opinion with Dr. Christison. On the contrary, it is one which he has expressed on various occasions and in various ways since **actual experience as an hospital physician of** **7 years' standing. It**

is an opinion, moreover, which is held by Dr. Alison, who can appeal to a corresponding experience, extending even to an earlier date. Now it behooves us to listen with great deference to anything which may be said by one who is so eminently entitled to speak, and as the subject is one of paramount importance, we shall not scruple to quote at some length from the paper before us.

The question considered is whether a constitutional change has taken place in *fever*—a question which stands on its own basis, and which is not less important than the question of a constitutional change in inflammation, and the answer is supplied exclusively from the personal observation of Dr. Christison in the fevers of Edinburgh during the last forty years.

In the year 1817 Edinburgh was ravaged by an epidemic of continued fever, and Dr. Christison considers that to the peculiarities of this particular epidemic may be traced the unreserved adoption of bloodletting as a principal remedy, for many years afterwards, in most fevers and inflammations.

"The epidemic fever of 1817-20," he says, "presented two well-defined forms. One was that which it has been for some fifteen years the fashion to call *relapsing fever*, on account of its extreme tendency to return after a perfect intermission of several days. Its proper nosographical name, however, is inflammatory fever—the *causus* of older authors, or *synocha* of Cullen and his contemporaries—by which last convenient name we all knew it when it first appeared, but which writers of the present day seem to have a dread of using, probably through fear of being thought to adopt Cullen's pathology along with his nomenclature.

"This fever, which is described in detail in a paper supplied by me on the subject of continued fever, to Dr. Tweedie's 'Library of Medicine,' in 1840, was characterized by its very abrupt invasion, often rendering the patient prostrate within an hour; by the continuous and urgent suffering from febrile anxiety, restlessness, burning heat, rending headache, and irritability of the organs of sense, throughout the whole period of perfected fever; by its abrupt departure, often in two hours, with free sweating, between the fourth and seventh days, most generally on the fifth; by a complete apyretic intermission succeeding so that in a few days the patient may be out of bed, or even walk out of doors, or sometimes actually travel to some distance without difficulty; by an abrupt relapse, ushered in with severe rigors, taking place on the fourteenth day from the beginning of the primary attack, and not to be averted by any precautionary management; and, finally, by a second abrupt sweating crisis on the third day of relapse, leaving the patient gently prostrate, and with a slow convalescence to pass through, but without any vestige of fever after the expiry of the few brief hours of critical sweating.

"I must omit here, for brevity's sake, all minor characters, and all varieties, of which there were several of great interest, confining myself to the prime features recognizable in a great proportion of the whole cases. These features, as now sketched, are so peculiar and so prominent, that one would imagine it impossible not to recognize such a fever. And, nevertheless, when it reappeared, after an absence of fourteen or fifteen years from our city, it was not at first recognized, though my account of it in the 'Library of Medicine' had been published only two years before. It was accordingly christened with a new name, *relapsing fever*; and an author had advanced far in printing a book about it, before he discovered that he was not a new observer in nosology.

"This fever, or *synocha*, as it appeared in the epidemic form in 1817-1820, was eminently of the athenic, phlogistic, or inflammatory type. Essentially it was a primary fever, without local inflammation. The pulse ranged from 120 to 160; it might be large, or it might be small; but if the latter, it was wiry; if the former, cordy; that is, always hard and incompressible; and no contrast could be greater than the sudden descent of this accelerated, irresistible pulse, to the soft, fluent pulse of 72 or less, which marked the influence of the resolving critical sweat. Then, the heat of the body ranged from 102 to 105, at times even to 107; the patient's sense of dry, burning heat was intense, so that he would lie, and still suffer from heat, with only a linen sheet over him, and the window open, in such cold weather as, for example, we have now in the month of March; and the feeling of heat imparted to another person touching the

skin was decidedly great and often pungent. Another remarkable fact was the florid hue of the venous blood, and its extraordinary impetus in escaping from the open vein. The blood, indeed, sometimes appeared as if it spouted from an artery. 'Aliquando sanguinem e venâ ita floridum et per saltum fluentem vidi, ut mihi metum arteriæ subjacentis vulneratæ primo perculerit.' ('Thesis Auctoris,' etc., 1819, p. 29.) In conformity with this state of things, the skin presented a vivid glow, not on the countenance merely, but likewise over most of the body; the thirst was excessive, the sense of pulsation in the head and chest distracting; and, as the senses were acute, the suffering was extreme.

"I am able to speak with some confidence to all these facts; for, besides observing them on numberless occasions in others, I experienced them myself no less than three times during fifteen months of this first epidemic. Two other peculiarities may also be mentioned. There was not often much delirium except in children, who, it is well known, are apt to rave in all febrile diseases. And there was little tendency to local secondary inflammation in those not exposed to cold and other privations at the period of invasion or recently before; but again, a great proneness to such complication in the class of society constantly liable to the predisposing and exciting causes of local disease.

"I have here described a disease which many now present have never seen, because, according to another remarkable law in its constitution, it never occurs—at least I have never seen it—except in the epidemic form. But, from my description, no one ought to have any difficulty in recognizing and acknowledging it as a very peculiar form of essential, idiopathic, or primary continued fever, characterized, among other particulars, by a truly æsthenic, inflammatory, or excited state of the circulation. We shall see presently what became of it. But, in the first place, let me describe the rest of the epidemic of 1817-20.

"Nothing in the shape of fever can well be more unlike this form of it than what is known to all in the present day by the name of typhus. In the ordinary run of cases of typhus the invasion is slow and gradual. There is nothing like vigorous reaction, or æsthenic fever, at any period of its course; the pulse being easily compressible, the heat little elevated, the skin dingy, seldom florid, the tactitation trivial, the senses benumbed, the mind clouded or disturbed by delirium. Then the fever runs on unabated for at least eleven days, more generally for fourteen or seventeen, or even more. There is seldom any tendency to crisis by sweating; the rule of critical days is very often violated; the fever never ceases abruptly, but, as it approached insidiously, so does it pass off by little and little. The liability to relapse is very slight. And when death results, which is a frequent event, a state of congestion of almost every important organ of the body precedes death for many days, and occasions delirium, coma, and other deplorable symptoms, which it would be inconsistent with the necessary brevity of the present sketch to describe. Lastly, this form of fever is not confined to epidemic seasons, but may be met with at all times. Hence it is, possibly, that the name *typhus* is rooted in medical language, and has even passed into common speech; while the name *synocha* is unknown in the latter, and is too little known even to professional men.

"Now, this form of fever was comparatively little seen during the epidemic fever of 1817-20. A true unmistakable typical typhus, as all physicians have understood it in this country, since the days of Cullen, could scarcely be said to form part of that epidemic. I doubt whether there was more of it than its ordinary sporadic proportion, or even so much. This is no *pro re natâ* proposition, got up for the occasion—now, for the first time—the offspring of controversy. Fortunately, I can satisfy every one of the contrary, by testimony of the time—by my own testimony in my inaugural dissertation, presented to the medical faculty of this university, in March, 1819, and consequently in the very middle of the epidemic. 'Febris continua Edinburgi formam typhodem, raro assumere dicitur: et in hac peste equidem rarissime aliquem signis typhi a Cullenò notatis laborantem vidi' (p. 9). I well remember, indeed, the interest excited among the students of our hospitals by the admission of a case of characteristic typhus into the wards.

"Instead of a true typhus, the epidemic was principally made up of a different form, which would be classed as typhus in the present day—and, perhaps, con-

rectly—but which, at the period in question, when external characters, or grouping of symptoms, were fully as much considered in nosological arrangements as the pathological essence, or anatomical characters of disease—was called synochus. Synochus, in the Cullenian nosology, is an essential fever, beginning as synocha, or inflammatory fever, and ending as typhus. However much it may be the fashion with anatomical nosologists to underrate Cullen's system of classification, and to throw aside his descriptions and definitions of disease, I must say that I even now do not know a better descriptive definition than his of the fever which constituted the most frequent form of the epidemic of 1817-20. For, at the beginning of the attack, no one could distinguish this variety from the inflammatory or (relapsing) fever already described. There was the same abrupt invasion, the same vehement pulse, the same high temperature, the same intense restlessness. In a word, for six or seven days there was no sign to show that the attack was not to end, like the inflammatory fever, in an abrupt sweating crisis. But, instead of that, the pulse and heat, at the close of the first week, abated somewhat in force; the acute, anxious inquietude passed by degrees into prostrate torpor; the mental faculties became clouded, and either delirium or stupor, or both, stole on imperceptibly; till at length, in ten or eleven days, the features of typhus were clearly unfolded.

Still, however, traces of the primary sthenic fever remained. Some cases ended by a slow, gentle diaphoresis, beginning on the eleventh, and going on till the fourteenth day—a termination, by the way, which I have seen about half a dozen times in the true typhus, both mild and grave, which has prevailed sporadically during the last three or four years. Other cases seemed to yield slowly about the eleventh or fourteenth day to bloodletting, without any critical sweat, or other evacuation. Occasionally, too, a crisis by spontaneous hemorrhage appeared to justify the treatment by bleeding, and illustrated the never-failing descriptions of ancient authors. It is also worthy of mention, that the termination of fever by hemorrhage has not been witnessed for many years in Edinburgh, either in epidemic periods or during the non-epidemic intervals. Another very important fact was, that in every mode of progress—in fatal cases equally as in recoveries—the pulse was generally observed to retain very long a considerable measure of that fundamental volume and force, which formed a predominating character of the early stage of the disease, as well as of the whole course of the inflammatory fever or synocha. One consequence of this state of the circulation was, that, in the secondary typhus stage, bloodletting, even practised from a vein, was borne well in general; and another consequence, not less remarkable and undoubted, was, that wine was not sustained with the ease and certainty which might have been expected from the proofs of typhoid prostration actually present. In my thesis wine, as a remedy, is thus adverted to: "*Stadio synochi icterodes progressio, typhaque puro, sed varietati præterea vix ulli, beneficio fuit.*"

"It will not seem unnatural, that at this period, and long afterwards, the two most prevalent forms of the epidemic—the one which terminated generally on or before the seventh day by sweating, and the other, which, instead of doing so, passed into a subsequent stage of typhus—were regarded as one and the same disease. Were we wrong? There was a time when, impressed by new phenomena in the progress of our epidemics, I was inclined to conclude, and have actually admitted in my lectures on clinical medicine, that we had been in error; that synocha, or relapsing fever, is a separate disease, *sui generis*; that true typhus is another, and that our synochus, or intermediate form, is only a modification of typhus. But, on later reconsideration, I am much inclined to revert to the original doctrine, so far as to see in synochus an ally of synocha, rather than of typhus, and possibly nothing else than an unresolved synocha. We have an analogue in malignant cholera. As observed for many years in the East Indies, if it did not prove fatal in the stage of diarrhoea, spasm, and collapse, cholera came to speedy resolution, without any remarkable consecutive phenomena. But after it reached Western Europe the patient had generally to pass through a secondary stage, much resembling profound typhus, and dependent apparently on suppression of urine. Nevertheless, the two forms are the same disease, however different in their course;

and no man has hitherto thought of making two diseases of them. Synocha and synochus, as they occurred in 1817-20, were not more different in their characters and progress. And yet, if they be assumed to be one and the same disease, what is to be thought of the relations of typhus, into which, undoubtedly, a characteristic synochus may be easily traced by the imperceptibly varying shades observed in a long succession of cases, even in one epidemic, but still more in several epidemics—the inflammatory introduction being, so to speak, softened by little and little, in a series of cases, till at length it is suppressed and lost altogether.

"Thus, by contemplating the many varying forms and shades of fever in one or more epidemics, we are irresistibly led to the great question—Are all these forms of continued fever essentially different or essentially the same, in origin and essence? As to this question, I will only say here, that, instead of becoming clearer as our information about fever extends, it has hitherto seemed to me to be rendered, on the contrary, more dubious than formerly; and that, above all, it is not to be solved in the negative, with the facility and confidence which have been brought to the inquiry by some purely anatomical physicians of the present day.

"But I must not allow myself to be diverted by this theoretical episode from the main action of my subject.

"I think that, if what I have said of the great features of the remarkable epidemic fever of 1817-20 be dispassionately viewed, no one can feel surprise that bleeding became for it a much-favored remedy. When the epidemic broke out, two other modes of treatment were in vogue—the diaphoretic plan and the cold affusion. Diaphoretics, though utterly useless, were generally given then, as they are given still, for the sake of doing something. We certainly did no good with them in 1817-20. The cold affusion too, a potent agent, and indicated by the great increase of animal heat, proved equally useless. It gave relief for half an hour, but was of no permanent advantage, though often repeated; and, after myself experiencing the agonizing central headache, substituted instantly by it for the prior and more bearable general headache of the fever itself, I felt no desire to inflict such intense suffering upon any fellow creature. But a fever, with such vivid reaction, demanded some sedative. Bloodletting, the most powerful and certain of all, was resorted to. And such were the good effects apparently obtained with it, that it soon came into universal credit, and was carried to what will very naturally now seem extravagant lengths.

"The following are extracts from my own account, in 1819, of these proceedings: '*Febris adultum implicantem raro uncis sedecim, frequentius viginti, viginti-quatuor, viginti-octo, trigintare missis expulsum vidi; et aliquando e viro procerro, forti, et toroso, tres libras, vel amplius insigni cum beneficioeductæ sunt.*'—'*Aliquando venam iterum iterumque feriri opus fuit.*'—'*Aegroti, quos solos tractavi, raro tertie venæsectionis indiguerunt; alii autem in compluribus exemplis ter quaterve cum exitu optato uti sunt.*' ('*Diss. Inaug.*' pp. 48, 49.)

"This was vigorous practice; and it was honestly and impartially enforced—sometimes to the terror of older, but less experienced fever physicians. I well remember the repugnance and distress of an elderly medical friend in Ayrshire, when, on my taking a third attack there in the autumn of 1819, and persuading him, much against his will, to sanction bloodletting, I insisted on his waiting till I recovered from faintness on losing fourteen ounces of blood, and compelled him to finish the legitimate allowance of thirty ounces in all. And let it be remembered, that we did by no means slay our patients by such blood-thirstiness. On the contrary, the mortality from the whole forms of fever collectively in that epidemic, did not exceed 1 in 22 at any period, and was reduced to 1 in 30 as the epidemic spread, and the remedy became more and more familiar. It was at the time universally believed that bleeding had a tendency to insure the resolution of synocha by critical sweat—to prevent in this way the passage of synocha into the secondary typhus stage—to moderate the secondary typhous phenomena—and even to relieve the evil tendencies to visceral congestion, which characterized the pure typhus occasionally encoun-

tered among the other forms of fever. I confess I am still loath to believe, with younger critics who never saw the epidemic of the time, that all these convictions were hallucinations. But, nevertheless, it must in candor be admitted, that the cure by bloodletting was resorted to by many too indiscriminately, and inflicted by others too energetically.

"The next epidemic of fever occurred in 1826-29. The causes of its spread on this occasion were much the same as before. In 1825 immense failures took place in all branches of commerce and trade in the British Islands; and the exhaustion of the country from that cause, with subsequent bad crops, reduced the demand for labor, raising at the same time the price of provisions. Fever seems always to burst into an epidemic in any such conjuncture.

"There is nothing further to be said of that epidemic, than that it presented precisely the same forms of fever, and the same constitution, with the prior epidemic. I had a full share in treating it, having been Ordinary Physician of the Infirmary and Fever Hospital during the whole period. It was during this second epidemic that I recognized more truthfully the relapsing tendency of the inflammatory fever; and that, finding the relapse could not be prevented either by any precautions or by quina, and observing it always to occur on the fourteenth day, I regarded this event no longer as a true relapse, but rather as an integrant part of the fever. The form of synochus, or, if the term be thought fitter, of typhus with a primary stage of a week's vehement reaction, was again the most prevalent. And all forms were alike treated by general bloodletting.

"At the end of it the form of enteric typhus, or dothineritis, first came into notice in Edinburgh, concurrently with an epidemic of dysentery, viz., in 1829. I may mention, however, that this form of fever had occurred so early as 1817, though it was not recognized at that time; for I have lately found, in some old notes, a case of the date of October, 1817, which was clearly one of enteric typhus, and another which occurred in January, 1819. This fever had always been rare in Edinburgh; and even in 1829 the cases of it were very few in number.

"In 1831, 1833, a minor epidemic presented itself. I know less of this than of others, because two attacks of fever in the early period, and in 1832-33 my first course of lectures on *materia medica* withdrew me from the study of its features. In 1832-33 I began my duties as professor of clinical medicine. And now my attention was first drawn to a change apparently going on in the constitutional phenomena of our continued fever.

"From 1831 onwards, for the long period of two and twenty years, our fever never receded altogether from the tendency to put on the epidemic form. During that long interval, the annual number never fell, except in one year, below 700 in round numbers; and on four occasions, in 1837-39, 1841, 1843-44, and finally in 1847-48, it gathered strength and became a formidable epidemic—the numbers increasing to twice, thrice, and on the last occasion, actually to six times the rather high average of the quiescent intervals. In the last of all, consequent on the distresses arising out of the failure of the potato crops, we had 8,400 cases of fever treated in our hospital in the course of two years. From the year 1826 till 1854, there has been no want truly of opportunities of becoming familiar with the phases of continued fever.

"In 1834 I became satisfied that a change had taken place in the constitutional character of our fevers. Synocha had disappeared. Synochus—a name which I may be allowed to use, now that my meaning in using it is clear—had also disappeared, or rather, its early stage had become much less clearly marked by the symptoms of vehement reaction, and so it was undistinguishable from a mild typhus. True typical typhus was much more common; and what did not come up to Cullen's mark of fully-formed typhus was what physicians would now universally consider as mild typhus, with more of introductory reaction than we observe now, but much less than in the two epidemics of 1817-20 and 1826-29.

"Accordingly, I doubted, and all the physicians of our hospital also doubted, whether bloodletting was applicable as a remedy to that fever. We could not bring about resolution by a sweating crisis with it. We could not lessen by it

the depth of the typhoid prostration. And, worse than all this, our patients, ceased to sustain free venesection, a few ounces of blood bringing on faintness, and the constitution refusing to rally afterwards.

"It is very important for me to adduce evidence, that the statement now made is not the result of an afterthought of the present day, but was come to at the time. This proof fortunately can be given from my lectures on *materia medica*. I cannot supply it so early as 1834, because I cannot fix precisely the date on which the lecture I shall quote on general bloodletting was first delivered, but it was written out, as I shall quote it, certainly in 1836, probably in 1835.

"I could show, indeed, from my lecture on wine in fever, written, in November, 1833, that, even at that earlier date, my attention had been pointedly turned to a change going on for some time in the constitution of fevers, and rendering that remedy much more frequently necessary than in earlier epidemics. And it is evident from this circumstance, that bloodletting must also have been noticed to be inappropriate. But, for brevity's sake, I shall confine myself to my direct observations on bloodletting, written two, or perhaps three years, later.

"Much discussion has arisen among physicians as to the propriety of employing this remedy in *synochus*, some forbidding it entirely, as unsafe, or as tending at the very least to protract the disease; and others maintaining that, when employed at an early stage, it is invariably one of the best means of mitigating the violence of the primary, and thereby lessening the danger of the secondary stage. The truth is, however, that each party is in error, and has been led to form an absolute or too exclusive opinion, from having reasoned on too narrow a basis of observation—from having observed the phenomena only during the prevalence of a single epidemic constitution.

"I conceive, that in *synochus*, the employment of bloodletting, as a general remedy, is sometimes signally useful, and at other times decidedly injurious; and that the main cause of the difference is a difference in the intrinsic constitution of different epidemics.

"When the primary stage of *synochus* is well marked, that is, when the inflammatory state of the circulation runs high; in short, when the fever distinctly commences in the form of *synocha*, bloodletting will often prove a valuable remedy." I then go on to describe how, in such circumstances, it may be employed to cut the disease short, by promoting a sweating crisis—to mitigate the force of reaction, and so obtain a milder typhus in the secondary stage—and to combat incidental local inflammation. And next, noticing the opinion of some, and especially of Dr. Welsh, a well-known writer on the Edinburgh epidemic of 1817-20, that 'the practice or neglect of general bloodletting is the main cause of the absence or prevalence of a typhoid character in different epidemics,' I proceed thus:—

"Had Dr. Welsh survived a few years longer, he could not have failed to alter his opinion. Since the time he wrote, the dominant type of our fever has been gradually changing, the typhoid character having by degrees taken place of the inflammatory tendency then prevalent; and this alteration has occurred in defiance of the practice of copious depletion. At present (1835 or 1836) cases of pure *synocha* are scarcely ever seen; cases of mild typhus are exceedingly common; and in cases of *synochus*, which are also frequent, the primary stage is imperfectly marked, the reaction seldom rising high, and the stage of depression coming on unusually soon.

"In this form of epidemic fever, then, if I were correct in laying down, a short while ago, the indications for bloodletting in *synochus*, free depletion must be seldom called for. The inflammatory fever seldom runs high enough in the early stage to require active depressing measures; diaphoretic crisis being almost unknown, we can scarcely expect to check the disease in its early stage, by inducing that mode of resolution; and, as for the third object of general bloodletting, the arresting of local inflammation, it would be absurd to resort to so active a measure if the local detraction of blood will answer the same purpose—which is actually the case.

"But this is not all. General bloodletting is not merely uncalled for in

the synochus which has appeared for some time past: it is also in general positively hurtful. A close observer of nature cannot fail to remark, that, compared with former epidemics, our fever, for some years past, has been accompanied with a marked depression of the nervous system. This affection, which appears the main source of danger in most cases, and which ought therefore to be chiefly borne in mind in the treatment, generally shows itself very early in the progress of the fever, commonly towards the close of the first week, or beginning of the second, and is out of all proportion great, compared with the previous or coexistent reaction. It has invariably appeared to present itself in an aggravated form in those individuals who had been copiously bled at the commencement of the attack; and any attempt to draw blood from the general system after its formation is followed by speedy faintness, sinking of the pulse, and increase of general depression. So much, indeed, have these facts forced themselves on my notice, that, from having been at one time an uncompromising and somewhat promiscuous venesector in continued fever, I feel now inclined to avoid it on every occasion; and I have seldom been induced, by incidental violence of reaction in the early stage, to depart from this reserve, without subsequently seeing cause to repent having done so.

"To conclude, in former epidemics of fever in this city, the prevailing type of the disease was inflammatory reaction; in the later epidemics, the prevalent character has been nervous depression. And, accordingly, if free depletion was the principal remedy in the former instance, the main remedy in the latter has been wine, with other stimulants. As a general practical rule in all epidemics of continued fever, it may be assumed that bloodletting will be safe and useful as a remedy in the different stages of synochus, for the purposes specified above, provided the epidemic constitution of the fever present frequent cases of pure synocha, and a strongly-marked stage of reaction in the early period of synochus."

"The two epidemics of 1837-39, and 1841, which occurred subsequently to the first date of these observations, amply confirmed the doctrine of a progressive change going on in the constitution of the epidemic fevers of Edinburgh. The only fact, in the history of these two epidemics, sufficiently important to require distinct mention in this summary, is, that synocha, or simple inflammatory fever, which had disappeared with, or soon after, the epidemic of 1826-29, did not recur with the next two epidemic visitations. At least I never saw or heard of it; and for ten or twelve years about that period, younger practitioners used to listen with something like incredulity to my description of a fever so singular in its character and course.

"In the epidemic of 1843-44, a more vehement one than any before it, synocha reappeared. My first encounter with it was one of those professional incidents which are not easily forgotten. In the commencement of the epidemic I had been for some months off duty in turn as clinical professor, when I called to see my colleague, Dr. Bennett, who was convalescing from an attack of it. He had suffered severely from that complication of fever in which there is an icteric hue of the integuments; but, though still confined in a great measure to bed from debility, he was well otherwise, and enjoying the genuine pleasures of a fever convalescent. When he had detailed to me his case, I told him he had sustained, to all appearance, an attack of my old acquaintance synocha, whose face I had not seen for a good many years; that he was not yet done with it; and that he would have another three days' attack, commencing with rigor on the fourteenth day. Dr. Bennett, surprised—I will not say incredulous—replied, that the relapse had no time to lose, as there was only three or four hours of the fourteenth day to run. It did, indeed, lose no time; for I must have scarcely reached home from his house, a distance of one mile, before the rigor set in with violence; and he had the old three days of fever again, terminating, as the primary attack had done, with an abrupt crisis by sweating. I do not know whether it may not occur to some to think that the relapse was brought about by the 'influence of suggestion,' concerning the remarkable operations of which my colleague has since discovered lately with so much ability and eloquence. But hundreds of similar cases occurred afterwards, for which the blame could not be laid upon any such mesmeric agency.

They became so frequent, indeed, as to attract universal attention; and they were thought to constitute a form of fever new in Edinburgh, until reference was made to my prior description.

"This synocha, however, though so prevalent, by no means presented the same strong phlogistic or sthenic character as in the earlier epidemics of 1817-20, and 1826-29. The pulse was neither so frequent or so strong; the heat was not so pungent; the glow of the integuments was less lively and less general. In short, some influence seemed to have existed in one epidemic which did not exist in the others, and by which the force of the circulation was kept down. So, too, typhus, a very frequent form in 1843-44, showed itself in its most characteristic adynamic, or asthenic shape. And what I have called synochus presented a first stage of reaction, so feebly phlogistic, that the disease was very generally, and perhaps correctly regarded as typhus; and it was only those acquainted with the high phlogistic introductory stage of that form of fever in the earlier epidemics, who might at this time suspect the co-existence of a third form of fever, intermediate between synocha and typhus.

"In the epidemic now under consideration, there never was a question raised about the revival of bloodletting as a remedy. And the reason must be too apparent to require mention.

"A very short interval of imperfect repose ushered in the fearful epidemic of 1847-49, which consigned $5\frac{1}{2}$ per cent. of the whole population of Edinburgh and Leith, in little more than two years, to the care of the infirmary physicians, raised the hospital population for some time to 700, and rendered it necessary to treat many of the patients in wooden erections, raised from time to time, and at last even in military tents, borrowed from the garrison for the purpose.

"The cause of fever passing into the epidemic form on this occasion, and the probable cause of the magnitude of the epidemic, was the unprecedented hardships inflicted on the working classes by the failures of the potato crop in several successive years. To the general influence of privation thus arising may also be probably added a change in the bodily constitution of the community, caused by a change in the kind of food; at least the existence of a morbid constitutional condition was amply proved by the concurrence, unprecedented for a long term of years, of scorbutus, in the city and neighborhood.

"In the epidemic of 1847-49, typhus was the prevailing form of fever, and typhus of the most adynamic kind that I have hitherto seen epidemically. There could scarcely be said to be any intermediate form betwixt typhus and synocha, the prefatory stage of reaction being so feebly marked. Synocha itself, however, was extremely common, but with the same comparatively inert reaction which was observed in the previous epidemic of 1843-44. Enteric typhus also came in for a share, but, as usual in Edinburgh, a very small one.

"Here, again, there was no question raised about the revival of bloodletting as a remedy. Many cases did very well with little else beyond attention to their comforts; and in the rest, the dominant remedy was wine, with other stimulants.

"With the year 1849, there set in a series of favorable seasons, producing abundant crops, and, indirectly, ample employment for the laboring classes. Under the blessing of Providence, we have been reaping the result in a continued immunity from fever, such as Edinburgh has never experienced since the dawn of my medical life. * * * * *

"My own convictions on the subject are so strong that I regard nothing as more likely, than that in the course of time, some now present will see the day when a reflux in the constitution of fever will present it again in its sthenic dress, and again make the lancet its remedy. And, in that event, it is not impossible that, while we are now charged with giving up bloodletting, because it was discovered to have never been the proper method of cure, we will hereafter be assailed by some new enthusiast in bloodletting, who, in imitation of Dr. Welsh, and regardless of the fate of his doctrines, will accuse us, with equal justice, of having made our late fevers asthenic and typhus by blindly withholding their fittest remedy."

A Treatise on Rheumatic Gout, or Chronic Rheumatic Arthritis of all the Joints.
By ROBERT ADAMS, M. D., A. M., M. R. S. A., &c.; 8vo. pp. 362. Illustrated
by wood-cuts and a 4to. atlas of plates. (London: Churchill, 1857.)

This treatise, as stated in the preface, embodies the substance of the Clinical Lectures on this disease, delivered by the author during several years, and comprises also the principal part of many communications made by him from time to time, and already published; hence, therefore, although the work contains views with reference to this disease which have, perhaps, some claim to originality, still it cannot be expected that it will be found to suggest much which can now be considered new, or which had not, either by himself or others, been already laid before the profession. Interspersed throughout the pages are numerous wood-cuts; and an atlas of drawings taken from remarkable specimens of this disease in the Museum of the Richmond Hospital, Dublin, is associated with the work.

On the cover of the work the title "Rheumatic Gout" is applied, within, the first title is "Chronic Rheumatic Arthritis, or Rheumatic Gout;" and the designations given to the disease first demand our notice. The author states that when the wrists, hands and feet are affected the disease is often denominated "rheumatic gout," but when the shoulder, elbow, or knee, singly, or simultaneously, it has been generally named "chronic rheumatism." By Dr. Haygarth, of Bath, the affection was considered to differ both from gout and rheumatism, and called by him "nodosity of the joints." Dr. Haygarth added that by giving the disease a distinct name he trusted it might be considered as a separate genus, and become a more special object of medical inquiry. Cruveilhier calls especial attention to the disease, and proposes to have it named "*Usures des Cartilages Articulaires*." Dr. Adams agrees with Haygarth and Cruveilhier in thinking it a matter of much importance to give this disease some special designation, so that it may get a distinct consideration from the profession and the public, and proposed, some time since, the term "Chronic Rheumatic Arthritis," the disease being slow in its progress, and of a sub-inflammatory nature, and the joints large and small are the principal seats of it.

We consider the author's term of "Chronic Rheumatic Arthritis" very preferable to that of rheumatic gout, which latter we protest against, for, as we shall find, it has no connection with true gout, and the structural alterations of the joints are no way similar to the changes which occur in the latter disease, and which are peculiar to, and pathognomonic of it; and again the condition of blood is by no means allied to that which occurs in gout.

The 2d chapter is devoted to the consideration of the causes and symptoms of the disease.

It is sometimes a constitutional, sometimes a local disorder; when constitutional it affects numerous joints, and is symmetrical on the two sides of the body. Sometimes when constitutional it seems to have its origin in true rheumatic fever, or acute rheumatism; sometimes, on the other hand, although the patient may be exposed to the ordinary causes, as from the sudden exposure to cold when the body was much overheated by hard labor, it seems to arise gradually without any preceding acute attack; sometimes, again, when confined to one articulation, it appears to be produced by local causes, as the habitual over-exertion or sprain of the joint.

The principal symptoms may be thus enumerated. Some pain, especially at nights, but not so much as might be expected from the amount of anatomical change, rigidity of the joints, and a crackling sensation produced in exercise, accompanied with pain, more especially felt when the patient commences to move about after a period of repose, as after the repose of the night, the muscles are not organically affected, but often the seat of painful spasms, the joints enlarge. The swelling is at first soft and fluctuating, but gradually becomes harder and harder. According to our author, it is found in both sexes and at almost every age; in males the hip-joint, in females the wrists and hands are the parts more frequently affected. With regard to the crackling noise, it is often both felt and heard, not only by the patient, but some-

times by others in remote parts of the room. As to the condition of life in which it is most commonly found there exists some discrepancy of opinion; Dr. Adams regards it as occurring chiefly among the laboring poor; Sir B. Brodie, on the other hand, among the upper classes; a difference of opinion possibly explained by a difference in the classes of patients which more prominently came under each surgeon's notice, perhaps occasionally from different diseases being described.

The enlargement of the joint depends on many causes, such as synovial effusion, the exostotic growths, and the distended synovial bursæ, some of which are offshoots from the joint, others distinct therefrom; the bursæ of the olecranon are often affected, but no gouty matter is found in them, neither is there any layer of urate of soda seen in or upon the articular cartilage of those cases which the author considers true chronic rheumatic arthritis. During the whole course of his numerous researches, Dr. Adams only once met with true bony ankylosis, and suppuration is exceedingly rare.

Chapter III. includes the diagnosis and prognosis of the disease. Haygarth, the earliest writer on the subject, states as follows: "The nodes appear most nearly to resemble gout, both of them are attended with pain and swelling of the joints, but they differ essentially in many distinguishable circumstances. In gout, the skin and other integuments are generally inflamed, with pain, which is very acute, soreness to the touch, redness and swelling of the soft parts, but in no respect like the hardness of bone. The gout attacks the patient in paroxysms of a few days, weeks, or months, and has complete intermissions, at first for years, but afterwards for shorter periods. The gout attacks men much more frequently than women. There is one distressful circumstance which distinguishes this disease; it has no intermission and but slight remissions, for during the remainder of the patient's life, the nodes gradually enlarge, impeding more and more the motion of the limb; the malady spreads to other joints without leaving or producing any alleviation in those which had been previously attacked."

As to prognosis, it is less serious when local than when general, in which latter case gradual progression from bad to worse seems inevitable. The prognosis, however, as far as life is concerned, is not serious provided the patient be in easy circumstances.

In Chapter IV. the anatomical characters of the disease are given.

1. Alterations in the fibro-synovial structures of the joints produced by the disease; capsules distended with synovial fluid, thickened, and exhibiting signs of chronic inflammation. The redundant fluid is afterwards absorbed, and the capsular membrane acquires a preternatural density (in the hip-joint it has been seen a quarter of an inch thick), sometimes it even contains bone in joints long affected; in the interior many of the structures become altogether removed, as the round ligaments in the hip-joint, the tendon of the biceps in shoulder. All the articulations which have been long affected are usually divested of their cartilage of incrustation. In ancient cases the inter-articular fibro-cartilages are also absorbed, as in the lower jaw, wrist, and knee-joint. In consequence of the distension produced in the capsular membrane by the increased quantity of fluid in the first stage, the lateral ligaments of the ginglymoid joints become preternaturally elongated, from the effects of which they are slow to recover; hence, at first, the laxity of these parts in the smaller joints gives them at first a greater degree of mobility, rendering partial or complete dislocation more easy than natural; the capsular ligaments of the other joints also retain their elongated state favoring a similar dislocation in them.

Foreign bodies, varying in number, size, and consistence, either bony or cartilaginous, connected more or less closely by slender or broad-based ligaments to the other structures of the joints, and sometimes even free, are not of uncommon occurrence; and when a joint has been long and severely affected, "*additamentary-bones*" (so called by our author), have been found deepening and enlarging the cavities of reception for the heads and condyles of bones composing the articulations; and lastly, in such joints membranous productions or "*vascular excrescences*" are often met with.

Alterations in the osseous system.—The cartilaginous incrustations, as before said, are completely removed; and when the disease is of long standing, its place is supplied by an ivory-like enamel, remarkable for its polish and hardness. In the first class joints, such as the hip and shoulder, the surface of the head of the bone becomes like an ivory ball; in the ginglymoid joints, at the knee, &c., the cartilage is supplied by patches of this same substance (ivory eburnations), marked by grooves hollowed out in the direction of the movements of the joints. The denuded surfaces become partly worn away, and a smooth enamel is formed by the mutual action of the bones on each other; and, around the articular surfaces thus mechanically acted upon, bony vegetations arise. The heads of the bones thus flattened have the appearance as if they had been crushed down, and in the hip and shoulder-joints may lead to error of diagnosis. The sockets of the bones are also altered, in some cases rendered much deeper, in others shallower and otherwise deformed, and the shafts of the bones, especially in the vicinity of diseased joints, become dense and hypertrophied.

In Part II., the special affections of each joint are detailed, and by far the greatest portion of the book is devoted to their consideration. We will give one or two illustrations.

Hip-joint.—The causes of the affection of this joint are of the same nature as in the rest, but perhaps blows and falls are more frequently operative; when it appears, as it often does, as a local complaint, it rarely extends to other articulations; it may, however, follow the disease of the other joints. In addition to the stiffness and crackling, &c., there is shortening of the limb, more marked in appearance than reality, eversion, wasting of the muscles of the thigh, but not of the calf; hence the flattening of the nates, more or less spinal curvature in the dorsal region, the convexity being towards the affected side, and the distance between the false ribs and pelvis of that side less than on the other. No pain is produced by firmly pressing the head of the bone against the pelvis.

Anatomical characters.—The head of the femur loses its normal form apparently at the expense of the neck; and the long axis of the neck, instead of passing from below upwards, inwards and forwards, passes backward somewhat, and its right angles to the shaft of the bone, so that the highest part of the head is often below the summit of the great trochanter. The head of the femur, when not eburnated, in the dry state, presents a porous appearance, as if drilled with minute foramina; in the recent specimens these pores are filled up with a very red cellular tissue. In those cases, where the hip-joint was movable during life, the pores were filled up, but none found to project beyond the level of the articular surface; in those, on the other hand, where there was no motion, there was a fine vascular cellular tissue, projecting from them, and covering the articular surface of the head of the femur and interior of the acetabulum, and beneath this no cartilage of incrustation existed.

Knee-joint.—From the commencement of the disease the knee-joint is observed to have a strong inclination inwards, which is most evident when both knees are affected; the bones of the leg are rotated outwards, and the foot everted; the patella rests on the outer condyle of the femur, sometimes entirely outside this condyle; when the swelling is at its maximum, in addition to other effects, there is a projection in the popliteal space leaning towards the inner head of the gastrocnemius, disappearing when the knee is flexed, and more tense when the joint is extended, and produced by the distension of a normal bursa connected with the cavity of the joint.

In later stages, the fluid and swelling disappear, the patella takes its proper position, and an articular crepitus is felt, produced by the grating of the rough surfaces upon each other.

Diagnosis.—In white swelling there is more wasting of the limb, the swelling is not well defined and elastic; in chronic rheumatic arthritis the swelling is soft and fluctuating; the cellular membrane around the synovial sac and behind the ligament of the patella is swollen and infiltrated in white swelling, but not so in chronic rheumatic arthritis, when the tendon stands out quite distinct.

finement to a warm atmosphere, warm baths, and mercurials combined with opium, seem to be the most rational means to resort to, with the expectation of arresting the progress of the affection in its early stages; but, on the contrary, if chronic rheumatic arthritis has gone on to the destruction of the articular surfaces, and the movement of the joint is followed rather by a stiffness of the limb than actual pain—in this case, some walking exercise daily may not only be permitted, but recommended to the patient: his general health will be thereby improved, and the articular surfaces will be found to move more freely on each other, owing most probably to the ebriation of them which we know to be induced by motion. If, however, on the one hand, it be true, that in the early stages of the disease exercise is likely to aggravate the symptoms; still, upon the other, it is important to have present to our minds the evils which result from the system of the articulations being kept for a great length of time in a state of quietude; for my experience accords with that of Teissier and Bonnet, that prolonged and absolute repose of the joints, particularly in old persons, is calculated to determine serious alterations in the articular structures, such as effusion of a sero-sanguineous fluid into the synovial sacs, the formation of false membranes, erosion and thinning of the cartilages, &c.” With regard to the efficacy of different mineral waters in this affection, Dr. Adams thinks at present the treatment of the disease has not been sufficiently advanced to enable us to determine as to the positive and relative merits of the different watering-places; but he thinks, and in this we most fully coincide, that “when the affection has become more generally understood and distinguished from gout and rheumatism properly so called, and the results of experience faithfully recorded, then, and not till then, will the physician be enabled to speak more positively as to the general medical treatment both of the local and constitutional forms of chronic rheumatic arthritis.”

In concluding our notice of Dr. Adams' work, we can heartily recommend it to the perusal of our readers, feeling confident that it is one which represents the results of much labor and perseverance in the study of a most obscure affection; and if we may feel at first somewhat disappointed at finding so little space devoted to the pathology of the disease and its treatment, yet on further consideration we shall perceive that this paucity is in no way the fault of our author, but depends rather on the imperfect state of knowledge on the subject. The work throughout is copiously illustrated by numerous woodcuts, and the atlas contains many valuable illustrations of the changes induced by the disease.

On Purpura and its Connection with Splenic Disease. By Dr. HABERSHON, Assistant-Physician to Guy's Hospital. (“Guy's Hospital Reports,” Third Series, vol. iii. 1857.)

Dr. Habershon divides purpura into—

- 1, 2. The *simple and hemorrhagic forms*, arising from disease of the spleen and liver.
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5. The *petechial form* in typhus and typhoid fever.

The paper is illustrated by fourteen cases, and all the ordinary points in connection with the disorder are carefully considered. Attention was drawn to the spleen by the two following cases:—

CASE 4.—William G—, æt. 34, a rope-maker, residing in the old Kent road, admitted under my care June 1st, 1854. He stated that he had never been ill, and that he felt well till three days before admission, when purpurous spots made their appearance on his ankles, but afterwards became general. They were not preceded by any particular symptoms. He was a married man, and his habits of life had been regular and temperate; his diet had been a mixed

The morbid appearances are as follows: Enlarged burso, sometimes multilocular; many pendulous excrescences in the interior, like the appendicæ epiploicæ of the large intestine, and small processes like melon seeds, foreign bodies, or loose cartilages. In the first stage the articulating fibro-cartilages are of a dull-yellow color, softened so as to be easily penetrated by a probe, thinned and separated into fibres, in fact, in an early state of disintegration. The semilunar cartilages are generally removed altogether as the ultimate result of this disease, but rarely found hypertrophied. The cartilage of incrustation becomes removed; the patella is seen broader than natural; the internal articular surface of the tibia is usually narrower than the external, which last is found to present a large circular outline, partially surrounded by a rim of bone, and elsewhere having a smooth and eburnated surface; bony vegetations are seen on the posterior and lateral margins of the condyles of the femur; the most common luxation in this variety is the sub-luxation of the femur inwards.

We have now given a very slight sketch of the manner in which the affection of two of the chief articulations in the body are treated, but in the work itself will be found every information which can be desired concerning the diagnosis, morbid appearances, &c., of the affection, not only when it attacks the hip and knee, but as seen when all the important joints liable to become altered by this disease are implicated, as the shoulder, elbow, wrist, and the joints of the carpus, metacarpus, and phalanges; also of the ankle and the joints of the tarsus, metatarsus, and toes; the temporo-maxillary, sterno-clavicular, and anomio-clavicular articulations; and, lastly, the disease as it affects the vertebral column.

The consideration of the treatment of the disease, though contained in the first part of the book, we have left for consideration till the last; only twelve pages are given to the subject, and these contain more the opinions of others than the results of the author's own experience.

Dr. Adams first reviews the question as to whether the disease is of an inflammatory nature or not, as this question should be answered before the treatment can be advantageously discussed. He first quotes the late Dr. Colles, where he states that, "He did not think that genuine inflammation had anything to do with its origin, for nothing like pus or lymph had ever been found in the affected joints; if it be inflammatory, it has not the characters or consequences of true inflammatory action."

Dr. Todd's opinion is next given, who thinks the "affection of the joints may be most correctly described as an abnormal nutrition, occasioned by the presence of a peculiar matter in the nutrient fluid, affording doubtless certain points of resemblance to chronic inflammation, yet differing from it in a very marked manner."

Other quotations are given from authors holding opposite opinions, especially Cruveilhier and Sir B. Brodie, with whom the author evidently coincides, considering that the ordinary causes of the disease, also the pain, swelling, heat, and redness when the affection is external, and the redness of the synovial membrane and fimbriae, and the inordinate effusion of synovial fluid, as well as the hyperæmic condition of the bones themselves, all point to inflammatory action.

The contents of the three or four pages in which Dr. Adams really discusses the treatment of the disease, may be thus summed up. During the earlier periods, the application of leeches and cupping-glasses is attended with advantage.

In a few instances, the combination of guaiacum and sulphur, &c., called the Chelsea pensioner's electuary, has proved beneficial after its long-continued use; so also the ammoniated tincture of guaiacum. Anodynes should be employed in the form found to produce least uneasiness to the patient. As to the question whether those afflicted with this disease should yield to their disorder, and condemn themselves, as it were, to immobility for life, or whether they should contend against it, and persevere in walking, even although it proved painful and fatiguing, Dr. Adams replies as follows: "That in the commencement of the disease, rest, cupping, the frequent use of leeches, con-

finement to a warm atmosphere, warm baths, and mercurials combined with opium, seem to be the most rational means to resort to, with the expectation of arresting the progress of the affection in its early stages; but, on the contrary, if chronic rheumatic arthritis has gone on to the destruction of the articular surfaces, and the movement of the joint is followed rather by a stiffness of the limb than actual pain—in this case, some walking exercise daily may not only be permitted, but recommended to the patient: his general health will be thereby improved, and the articular surfaces will be found to move more freely on each other, owing most probably to the exburnation of them which we know to be induced by motion. If, however, on the one hand, it be true, that in the early stages of the disease exercise is likely to aggravate the symptoms; still, upon the other, it is important to have present to our minds the evils which result from the system of the articulations being kept for a great length of time in a state of quietude; for my experience accords with that of Teissier and Bonnet, that prolonged and absolute repose of the joints, particularly in old persons, is calculated to determine serious alterations in the articular structures, such as effusion of a sero-sanguineous fluid into the synovial sacs, the formation of false membranes, erosion and thinning of the cartilages, &c.” With regard to the efficacy of different mineral waters in this affection, Dr. Adams thinks at present the treatment of the disease has not been sufficiently advanced to enable us to determine as to the positive and relative merits of the different watering-places; but he thinks, and in this we most fully coincide, that “when the affection has become more generally understood and distinguished from gout and rheumatism properly so called, and the results of experience faithfully recorded, then, and not till then, will the physician be enabled to speak more positively as to the general medical treatment both of the local and constitutional forms of chronic rheumatic arthritis.”

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one, beef and mutton, and he had not restricted himself in the use of vegetables. The gums became very sore and tender, and began to bleed, but epistaxis did not come on for several days. The bowels were regularly acted upon. On admission there were numerous spots of purpura on the body; the motions were dark and extremely fetid; the urine contained neither blood nor albumen. The gums were slightly spongy and bleeding. The pulse small and feeble. The pupils rather dilated. Sulphate of magnesia, dilute sulphuric acid, and infusion of roses, were given every four hours; meat diet, and greens. June 3d, the epistaxis had ceased, but the gums continued to bleed. On examining the blood microscopically, there was no increase of the number of white corpuscles; the red were crenate probably from saliva. 4th. Decoction of bark with chlorate of potash were given. 5th. The epistaxis returned. 6th. There was pain in the left hypochondrium; no relief to other symptoms. Ordered: Tincture of iron, ℞, xv, with lemon-juice, ℥j, every four hours. 8th. He was much worse, the hemorrhage from the nose and mouth had increased. He was insensible and comatose. The pulse was slow, small, and feeble. He had passed a considerable quantity of blood from the rectum and from the bladder. The pupil of the left eye was much dilated, the right much contracted, the eyelid only partially closed. The right side was hemiplegic, with loss of motion and sensation, and the temperature was lower than the other; tickling the left foot produced excito-motory movement, not so the right. The paralysis had come on the same morning at ten, and was preceded by severe pain in the head. The coma continued till death, on the afternoon of the same day, and death appeared to be immediately caused by the passage of the blood into the larynx, and the obstruction about the epiglottis.

Inspection was made twenty-one hours after death. On the right conjunctiva there was ecchymosis, and the left side of the mouth was fallen. The whole of the body was thickly studded with spots of purpura, there was blood on the gums and at the nostrils. *Head*: There were spots of ecchymosis on the scalp, and the dura mater was thickly studded with points of effused blood. The arachnoid was dry, and the convolutions much compressed. Blood was effused into the meshes of the pia mater; and on the left side corresponded to the temporal bone. The fluid in the ventricles was slightly tinged with blood, more so on the left than on the right side. The left posterior cornu contained blood, and between this portion of the ventricle and the external surface was an irregular clot of blood, and numerous points of ecchymosis; the surrounding brain substance was soft and diffuent. *Chest*: The mucous membrane of the oesophagus, as high as the clavicle, was infiltrated with blood. The trachea presented points of ecchymosis, so also the bronchi. The lungs did not collapse, they were congested, and contained spots resembling pulmonary apoplexy. The pleura had in it a small quantity of bloody serum, and the costal pleura was spotted with bloody points; there was a small quantity of bloody serum in the pericardium; the heart had numerous points of ecchymosis on the anterior surface of the right and the posterior surface of the left ventricle. The heart was flaccid, but its muscular fibre and valves were healthy; its cavities contained fluid blood; its weight nine ounces. *Abdomen*: In the rectus abdominis there was some blood effused. The peritoneum was healthy; but portions of both small and large intestine were distended with dark-colored bloody fluid. The mucous membrane of the stomach, duodenum, jejunum, and ileum, were throughout ecchymosed. The cæcum was in a similar condition; and blood was poured out into the substance of the mesentery. The liver was pale but healthy in form and structure, three pounds three ounces in weight. The spleen was pale, soft, of a dull red color, and contained very numerous light-colored masses, about the size of peas, through the whole of its substance. These pea-shaped masses, on microscopical examination, were found to be connected with the splenic capillaries, a larger capillary vessel being observed to be connected with one side of the mass; and on the other were several smaller vessels, but it could not be ascertained whether these ramified over or passed through the structure. The rounded mass consisted of granules and cells; several of them were irregularly aggregated together, so as to constitute the pea shaped mass before mentioned; splenic cells were observed of various sizes generally about

the size of white corpuscles of the blood, some contained a distinct nucleus, others granular matter. The supra-renal capsules were large and pale; the lumbar and other glands healthy, but the areolar tissue about the lumbar nerves was spotted with blood. The kidneys were enlarged, being eleven ounces in weight; the secreting portion was healthy, but a considerable quantity of blood was effused into the mucous membrane of the calyces and the pelvis of the kidney. The bladder contained bloody urine, and its mucous membrane was ecchymosed.

CASE 5.—Joseph O.—, æt 23, was admitted under my care into Guy's, June 28th, 1855, and died on the 30th. He was pale and anæmiated, a man of dissolute habits, who had employed himself as a news-agent, and had resided in Kent Street, Borough. For three months he had had epistaxis, and for about one week before admission he had had a boil on the sacrum, from which a discharge of thin serum took place in considerable quantity. On the day of admission he had discharge of blood from the nose, and from the margins of the gums; the pulse was sharp and jerking, the voice hoarse, the respiration accompanied with a loud stridulous noise; at the base of the right lung there were mucous râles; the conjunctiva was watery, and the urine albuminous. Steel and quinine were administered. On the 30th, the brain became oppressed, and the patient gradually became comatose; a blister was applied to the neck, and a turpentine enema administered. In a few hours death took place.

Inspection.—The body was pale, but there was no œdema. *Brain:* The sub-arachnoid fluid was increased; at the lower surface of the right lobe of the cerebellum there was a patch of ecchymosis; and the section showed that minute points of blood were extravasated throughout the convolutions in the course of the pia mater, covering a space about an inch in diameter, there were also some points of ecchymosis in the white substance. In the mouth were clots of blood. The larynx contained bloody mucus, but was not œdematous. There was a small quantity of bloody serum in each pleura. The bronchi were full of tenacious muco. The lungs were very œdematous, slightly compressed, and readily lacerable. *Heart:* In the right cavities, was firm decolorized clot, in the left small loose clots; there was considerable fatty degeneration of the muscular fibre of the heart, as shown in the wavy mottling of the inner aspect, and on microscopical examination; the left ventricle was dilated and hypertrophied, the weight of the heart fifteen ounces. The stomach and intestines were healthy. The liver was healthy; the gall-bladder full; the spleen four and a half ounces in weight, but the Malpighian bodies were large, pale, and appeared to form a considerable portion of the gland, &c. The kidneys were pale, granular, extremely degenerated; the tubes wasted and full of granules.

Commenting upon these cases, Dr. Havershon says:—

"It is to the spleen that attention was drawn in both the cases here recorded, as the only structure presenting evidence of disease which could not be looked upon as the effect rather than the cause. Dr. Copland describes the spleen as sometimes enlarged and softened, but here the appearance was remarkable; the enlarged gland was of a dull red color, and studded throughout with pale yellow spots, from one to three lines in diameter; they were connected with the capillary circulation, and consisted of cells, nuclei and granules. It is doubtless correct to consider them Malpighian corpuscles; and, as far as these observations point, they tend to show that this diseased condition of the spleen is a cause of purpura hæmorrhagica. The researches of Mr. Gray on the 'Structure of the Spleen,' and those of Dr. Hughes Bennett on the 'Connection of the Spleen with Leucocythemia,' also confirm the connection of this part of the gland-structures with the formative changes of the blood. In the case under my own care the white corpuscles of the blood were not in excess, perhaps the reverse; the disease observed in the spleen may have been the cause of imperfect elaboration of the fibrinous element of the blood. In several fatal cases recorded by Plümbe, the spleen is stated to have been healthy, but they were associated with other fatal diseases, as smallpox, tubercular disease, chronic pneumonia, and diphtheritic inflammation of the mouth. In a case of fatal apoplexy in a child, recently under Dr. Gull's care, with disease of the

aortic valves, aneurism, &c., the spleen presented a similar appearance; it is doubtful whether this state of the spleen had any connection with the fatal effusion of blood, or whether it was merely a condition of functional activity.

"The occurrence of purpura with ague, and the tendency to hemorrhage in that disease, strengthen the idea of a splenic origin of the complaint. So also its occasional presence with disease of the kidney does not militate against this idea, for in a case (No. 5) under my care, of advanced degeneration of the kidney, in which hemorrhage took place from the gums, &c., the spleen was found in a similar condition. Some forms of purpura, however, should rather be considered as simply of a congestive character; thus, in disease of the heart, whilst the liver and spleen are both engorged, and the healthy function interfered with, we find mechanical obstruction leading to great venous engorgement; the minute capillaries become over-distended and at last ruptured, so that spots of purpura, and even blebs filled with serum and blood, are occasionally the result. Small spots of purpura are frequently associated with cirrhosis; and it is doubtful whether this is not the result of the hepatic disease alone, or whether of associate splenic disturbance; probably the former. In cirrhosis, epistaxis is a not unfrequent symptom; and in this disease, as in simple jaundice, it is very unwise to apply leeches or cupping-glasses without extreme caution, for the difficulty of stopping the bleeding is notorious, and has sometimes nearly led to a fatal termination."

Cases of Idiopathic Fatty Degeneration, with Remarks on Arcus Senilis. By Dr. SAMUEL WILKS, Assistant Physician to Guy's Hospital. ("Guy's Hospital Reports," Third Series, vol. iii., 1857.)

The cases of idiopathic fatty degeneration to which reference is here made, are cases which have not been preceded by any manifest primary disorder or by intemperance, and they are not to be referred to the head of senile fatty degeneration. Their only appreciable and probable causes were hemorrhage, diarrhoea, or miasmata; and the simple question is whether those or similar influences may have produced a debility of the system, of which this general change of all the tissues is the result. Dr. Wilks relates nine cases as examples of this state of fatal anæmia and fatty degeneration. In these cases the subjects are comparatively young, the heart is the organ in which the diseased change is most marked, and the body generally is neither fat nor wasted. The first three of these cases will serve as examples of the rest.

CASE.—Mary B—, æt. 31, was admitted under Dr. Hughes, in March, 1855. She had been living as servant at Rotherhithe, and since her marriage, about a year before, had had much domestic trouble. During the whole of this latter period her health had been failing, and, gaining no relief, she came to the hospital. She was then in an extreme state of anæmia, so that a loss of blood at once suggested itself as the cause; but she denied having had any hemorrhage, diarrhoea, or any other symptoms excepting those dependent upon her gradually increasing debility. The catamenia were also regular. Her pallor was so great that it at once arrested the attention of every visitor to the ward. There was no increase of white globules in the blood. She grew feebler and feebler until her death, a fortnight after admission. During this time she had frequent vomiting and diarrhoea. The pulse was quick, and an anæmic cardiac murmur existed. It was afterwards learned that her mind at one time had been affected.

The *post-mortem* examination showed the body spare, but not wasted. The brain was healthy, but having a few small spots of ecchymosis in parts, and the base of the skull was very thin in parts. The heart presented an extreme degree of fatty degeneration. The mitral columns, especially, had about half of their substance occupied by the usual transverse lines of fatty matter. There was no conglutination in the heart or vessels, only a little watery blood escaping from them when cut. They presented no excess of white corpuscles. There was a considerable layer of fat in the integument of abdomen, and also in mesentery, omentum, &c. The liver was very fatty, although not in an extreme degree, for, on microscopic examination, it was seen that the circumference only of the lobules had undergone this change, and not the whole tissue. Kid-

neys appeared healthy to the eye, but tubules found to contain much fat. Spleen healthy, and moderate size. No trace of arcus senilis.

CASE 2.—Martha D—, æt. 28, was admitted a patient of Dr. Oldham, on November 13th, 1856. She lived in Lambeth, was a woman who had always had delicate health, and had suffered much domestic trouble. She had also had one or two miscarriages, with much hemorrhage. A few days before admission, being about three months pregnant, she was seized with flooding; this continuing uncontrollable, she came to the hospital; abortion occurred, and the hemorrhage gradually ceased. She was seen to be a well-developed woman, though now rather spare, and remarkably pale and anæmic. Nourishment of all kinds was given her, but she daily got lower, without any marked symptoms of derangement of any particular organs, and at last died, the legs having lately become slightly œdematous.

Upon *post-mortem* examination, December 9th, the body was seen to be tolerably robust, but very pale, and the ankles œdematous. The internal organs were all remarkably pallid and bloodless. Neither the heart nor the vessels contained any conglum, and scarcely any blood. The lungs were white, and exuded a little serum, but were otherwise healthy. The heart contained the ordinary amount of fat externally, but the muscular tissue had undergone an extreme fatty degeneration; the mitral columns, as usual, showing the feathery markings in the greatest degree. The right ventricle was but slightly affected, and no white lines or dots could be seen by the naked eye. The valves were healthy. The liver was white and very fatty. The spleen was very large, weighing one pound, but healthy. Kidneys very pale; appeared otherwise healthy to the naked eye. The microscope showed, however, the secreting cells to be filled with fatty molecules, and in many tubes little else could be discerned than similar granules. The uterus had not yet recovered its normal size, and its internal surface was covered by a dark-colored, sloughy, shaggy membrane. There was no trace of arcus senilis. The semilunar ganglion was healthy.

CASE 3.—William C—, æt. 16, was admitted under Dr. Addison's care in January, 1856. His only symptoms were those resulting from extreme debility; he being very pale, anæmic, and resembling, in fact, a chlorotic girl. He had however, a slightly yellow tinge, and he was not thin, though spare. He was an errand-boy in the city, and stated that he had not been well for three years, and had often suffered from bleeding at the nose, sometimes to a great extent, and lately had had diarrhœa. He had resided nowhere but in the city, and knew nothing of ague. Dr. Addison carefully and repeatedly examined him, but could find no local disease. While in the hospital he had, on two or three occasions, violent epistaxis; he often had sickness, and sometimes diarrhœa. He was so weak that he was obliged to keep his bed; but in April he began rapidly to improve, and left the hospital. He went to Berkhamstead, and was for a time better; but soon the diarrhœa and epistaxis returned, and he came back to the hospital in August. He was then as bad as ever, presenting a remarkably pallid aspect, as seen in anæmia, combined with a yellowish aspect which suggested a miasmatic influence as its cause. His skin was soft, and he was not wasted as in phthisis. Again, physical examination failed to detect any disease in the chest or abdomen. He kept his bed and daily sank, at times having diarrhœa and sickness, but no cough, and no more epistaxis. The legs at last became slightly œdematous.

Upon *post-mortem* examination, the body was seen to be pale, as during life; wasted, but not to a great degree; and skin smooth and supple. There was no appearance of puberty, and it would seem that the boy was two or three years younger than he stated himself to be. Lungs healthy; no tubercles. Heart in the most extreme degree of fatty degeneration; the whole of the left ventricle was covered by the usual white zigzag lines, not the smallest part being found unoccupied by this fatty change; the right ventricle was also similarly affected, though in a less degree; the auricles were healthy. The heart was empty, excepting the right auricle, which contained a small quantity of pale fluid blood. This showed no excess of white corpuscles. The large intestines contained numerous cicatrices of ulcers, or ulcers nearly healed, and a

little recent diphtheritic inflammatory exudation in parts. Liver pale and fatty, but not to an extreme degree. Kidneys appeared healthy to the naked eye, but microscope showed much fat, in the form of granules, in the tubes and secreting cells. The lymphatic glands were healthy. There was no appearance of arcus senilis.

The total absence of arcus senilis in these cases leads Dr. Wilks to make some general observations on the connection between this phenomenon and fatty heart. The abstract of several other cases of fatty heart are also given, in which arcus senilis was either absent or very slightly marked. Abstracts of a score of cases of arcus senilis are also given, in which there was no fatty degeneration of the heart. Dr. Wilks is of opinion, however, that a confusion in the expression *fatty heart* may lead to differences of opinion, that two very different pathological conditions have been included under one name, and that the arcus may be connected with one of them, and not with the other; one being a change concomitant with age or with those circumstances which bring about those alterations in the body known as senile, while the other is an altogether primary or idiopathic affection. The difference, as made by Dr. Quain, is between a growth of the natural fat of the heart destroying the adjacent muscle, and an interstitial change in the muscle of those parts of the heart in which no fat naturally exists. The one has reference to the right, the other to the left side of the heart. According to this view the arcus senilis accompanies the gradual increase of fat on the right side of the heart and its encroachments upon the wall and the right ventricle beneath, while it has no connection with those idiopathic changes in the muscular fibre occurring in earlier life, and dependent upon causes altogether apart from advanced age.

On Abscess of the Brain. By Dr. GULL, Assistant-Physician to Guy's Hospital, &c. ("Guy's Hospital Reports," Third Series, vol. iii. 1857.)

This paper is a very important contribution to the pathology of the brain. It contains no less than sixteen well-told cases of abscess of the brain, and the story which these are made to tell with respect to the history of the diseased change and its diagnosis is clear, telling, and not a little instructive. Dr. Gull, we may remark, discards the idea of idiopathic cerebral abscess. This form of abscess, he thinks, is no more than secondary abscess, whose origin is unaccounted for. When the primary abscess is at a distance, the blood appears to be the only medium through which the morbid influence can be conveyed, but the steps of the process are not clear. The brain, moreover, is regarded as having a tendency to suppuration, which gives it a pathological rank with glandular organs—an opinion, as is remarked, of no small significance therapeutically, and especially as to the use of mercury, since it is admitted that the diseases of tissues, having a suppurative tendency, do not bear the full action of this remedy.

The comments respecting the symptoms of this obscure affection are very valuable.

"The attendant headache differs from the headache of tumor in being less paroxysmal, and of shorter duration, before complications occur with it. The difference of this symptom in the two diseases, tumor and abscess, is to be viewed in relation to the different seats of the two lesions, and to their secondary influence on the brain-tissues. A large proportion of tumors arise in the bones and membranes. Abscess, on the contrary, principally affects the medullary substance of the brain. This is shown by a comparison of the following tables; that of the seat of tumors is from Lebert;* the other includes cases of abscess from Abercrombie and Lebert; and those subjoined by myself, excluding from the list the cases of abscess depending upon disease in the ear or in the nose, or on other local causes which might determine its site.

* "Ueber Krebs und die mit Krebs verwechselten Geschwülste, im Gehirn und seinen Hüllen." "Archiv. für Pathologische Anatomie," &c., Band iii. 476.

"Origin of Tumors affecting the Brain and its Membranes. (Lebert.)"

A. SINGLE TUMORS—

1. Beginning in the bones	3	
2. Beginning in the membranes—		
Convex surface	13	} 40
Base	22	
Falx cerebri	3	
Tentorium cerebelli	2	
3. Cerebral substance—		
Convex surface of the hemispheres	17	} 36
Deep parts of the hemispheres	4	
Protuberance and medulla oblongata	8	
Cerebellum	4	
Pituitary gland	3	

B. MANY TUMORS—

Bones only	2	} 15
Membranes only	2	
Cerebral substance only	6	
Bones and membranes	2	
Membranes and cerebral substance	3	

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"Seat of Cerebral Abscess not depending upon Disease of the Ear or other parts adjacent to the Brain."

In medullary substance of the hemispheres	15
In corpus striatum	2
In optic thalamus and posterior lobe	1
In medulla oblongata with serofulous deposit	1
In cerebellum	1

20

"It will be thus seen that in ninety-one cases of tumor (excluding the three cases of tumor of the pituitary gland), the bones or membranes were in fifty-two implicated from the outset of the disease, and that in ten at most was the tumor limited to the deeper parts of the hemispheres. Abscess, on the contrary, is very rare between the membranes, and then only when it arises from local disease of the bone, whilst in fifteen out of twenty cases it was seated in the substance of the hemispheres. It is obvious why, in such an estimate as this, the cases of abscess from diseases of the ear which are so common should be excluded; for, although in some cases, as remarked below, the abscess of the brain which follows is less from contiguity than from secondary processes, which operate at a distance, still it is difficult in these cases to exclude localising influences. It is necessary thus to explain, or it might be a matter of surprise that the above table was so limited in its numbers.

"The chronic and neuralgic character of the headache in tumor may be in part due to the inequality of its growth as well as to its seat. Abscess would produce a gradual and uniform pressure, which tumor would not.

"When a patient is debilitated, the symptoms of suppuration of the brain may be as it were stifled in the general oppression of the nervous system, and the only notice of cerebral lesion, may be paralysis often accidentally discovered, or the occurrence of a gradually deepening coma.

"The cases of suppuration in the brain which in their general aspect simulate continued fever, present, on a nearer scrutiny, many distinctive differences, such as occasional vomiting; constipation; contracted abdomen; vertigo; headache, more continued and severe than in fever; a slow, full, and sometimes intermittent pulse; impatience of disturbance, &c.

"For the diagnosis of cerebral abscess it is obvious that we cannot hope to find any pathognomonic symptom. Whether the brain-tissue suffer from tumor or abscess, or be otherwise compressed and disorganized, we may in turn, and in different cases, expect to have headache, convulsion, drowsiness, paralysis, and coma. Such symptoms considered individually, or as one may say statistically, avail but little in determining the conditions which give rise to them, no more indeed than an enumeration of the letters and words of an inscription, towards its decipherment. It is their order and duration which give them their characteristic importance.

"The headache of abscess is different both in character and duration from that symptomatic of tumor. It is rarely paroxysmal and neuralgic as it is in tumor, but more general and uniform in its expression, as well as more sudden in its rise and acute in its progress. Tumors, as we have seen, frequently affect the membranes, and often have a long chronic course; at the onset the pain is also more limited, or takes the course of particular lines of nervous distribution.

"Our knowledge of the seat and character of such growths no doubt helps us to appreciate better these degrees of difference, which, like different accents on a word, give a variety of meanings to the same symptom.

"General convulsion with insensibility is in itself of but little value in the diagnosis of any brain-disease. In abscess it probably occurs only at two stages, at the onset of acute changes in the nervous tissue, especially if such changes begin in the vicinity of the membranes; and at a later period, if the abscess bursts inwards into the lateral ventricle, or extends outwards to the surface. Amongst the subjoined cases is one where the abscess formed between the membranes under the posterior lobe of the right hemisphere. There convulsions occurred early.

"Limited convulsion without insensibility has far greater value, not as being absolutely distinctive, since the same often occurs with tumor, but as being to a great extent indicative of local disease; the character of which is to be determined by concomitant conditions and by the other symptoms. Case XIII. is such an instance, the clonic convulsion of the right arm without any affection of the consciousness, viewed in relation to the chronic suppuration in the chest, was an indication upon which the diagnosis was made of the presence of abscess in the brain. Abercrombie has described the remarkable course of these cases, the local clonic spasm without insensibility; the gradual supervention of epileptiform convulsion; the paralysis which follows indicating extension of irritation and pressure, more rapid in their course in abscess than in tumor.

"Though convulsion may be the first symptom of both tumor and abscess, there is generally this difference in the course of the two diseases; after convulsion with abscess, the recovery is more or less imperfect, and the patient remains drowsy and oppressed; whilst with tumor on the contrary, there may be epileptiform convulsions for a considerable time, the patient in the intervals of the seizures recovering almost, if not quite, his usual health.

"The pathological order of the symptoms in abscess, as deduced from observation, is headache; local or general convulsion; drowsiness; paralysis; coma. As might have been anticipated, there is no such constancy in the presence or intensity of these phenomena as to make them equivocal in their indication; and hence, at the bedside, it is often only by collateral circumstances, and by the known associations of the malady, that we are able to complete the diagnosis.

"If it be true, as I believe it is, that with the exception of suppuration produced by scrofulous deposit, idiopathic abscess of the brain does not occur, and that with the exception of that which follows direct injury, it is a secondary result of the suppurative process in some distant part, or of chronic disease about the head, then it is obvious that a scrutiny of every organ is the first step in the diagnosis, or that at least without which the diagnosis cannot be completed. It may often be difficult to trace the suppurative tendency to its source."

Then, after a table of the principal symptoms and causes of the cases recorded in the paper, Dr. Gull proceeds:—

"The general symptoms attendant upon the formation and presence of abscess in the brain occur equally in hydrocephalus. In both diseases, acute changes may be going on within the cranium, though the head and extremities remain cool. The altered respiratory rhythm; the slow, occasionally intermittent, pulse; sluggish pupils; vomiting and constipation, are evidence only of an oppressed medulla oblongata, which may arise from many causes.

"Rigors are not amongst the constant symptoms. They appear to be more frequent in inflammation of the lateral sinus, or when pus collects between the dura mater and bone. The nervous tissue yields readily, and hence, probably, the tension which excites rigor is not commonly produced by the formation of pus in its substance."

And, again:—

"There are no sure criteria of the seat of the suppuration even whilst there is the strongest probability of its existence. The following cases, and the recorded experience of others, show that there may be pain in the forehead, with abscess in the cerebellum, pain in one side of the head, whilst the abscess is in the other hemisphere, and even no symptom but drowsiness, though suppuration is extensive. The not unfrequent occurrence of more than one abscess is also a further complication of the diagnosis. Even where abscess follows injury to the scalp, it is not so entirely under the external wound as to make us sure of evacuating the pus by an incision. Clinical experience shows, however, that the brain-tissue will bear more mechanical interference than might have been supposed, and encourages the hope that as knowledge increases even here, our power may increase with it. Detmold's case, notorious from the doubts as to its veracity and the subsequent testimony to its truth is a striking illustration. Though life was not ultimately saved, it was prolonged by the surgical interference, and for a time consciousness and reason were quite restored. It might be of the highest importance in a similar case if this only could be effected.

"According to Lebert, there is no recorded case of cerebral abscess undergoing the process of cure. It is not improbable that, apart from the fatal tendencies of the malady, the prevalent use of mercurials as remarked upon at the beginning of this paper, may have had its share in this unfavorable history."

On some of the more Obscure Forms of Nervous Affections: their Pathology and Treatment. With an Introduction on the Physiology of Digestion and Assimilation, and the Generation and Distribution of Nerve Force. By HARRY WILLIAM LOBB, L.S.A. and M.R.C.S.E. (London: Churchill, 1858.)

Mr. Lobb, in the first part of his work, advances opinions, both in physics and physiology, which are diametrically opposed to those ordinarily received. One or two examples will convey a notion of Mr. Lobb's matter and manner.

Adopting a system of molecular physics (which would seem to have scarcely any other foundation than ingenuity) he makes this the master-key with which to unlock several of the mysteries of physiology. He assumes that "the ultimate atoms of all matter are spheroids in a state of vibration" (p. 6); vibration gives rise to certain definite currents; "currents in the spheroid produce rotation; rotation will continue the currents; they, therefore, contain within themselves the elements of their own existence" (p. 8); the currents are electrical currents, and as a consequence we have the conclusion that, as no change of any description can take place in matter without causing currents of electrical fluid, and as the combinations and disruptions which take place during an act of growth, and which occur through the agency of what is termed vital force, or as Mr. Lobb prefers to term it, cell force or cell electricity, are always accompanied by molecular changes, therefore, "Vital force is merely a modification of that remarkable fluid pervading all matter and space, always aiming at equilibrium and yet so easily disarranged" (p. 11).

Mr. Lobb's views will scarcely supersede the views of Mr. Groves and Dr.

Carpenter, the former of whom has dealt most ably with the physical relations of electricity, and the latter with the physiological. (On the mutual Relations of the Vital and Physical forces, "Phil. Trans." 1850, Part II.)

Mr. Lobb advances a theory of the formation of chyle-cells. He states that the initial step in the formation of the cell is the vibratory movements of certain minute crystals of phosphate of lime. These crystals during vibration become coated with the proteine and oily compounds of the chyle forming molecules. "When many of these molecules are formed, they, upon approaching one another, become attached in a line like a small string of beads, vibration still continuing; when a certain number are thus joined, they double one upon another, forming a nucleus, to which minute atoms are continually added until a tolerable aggregation is the result; this is a mass of molecules. The external atoms now proceed to form a cell wall, which, in this period of its existence is completely invisible: but it consists of minute atoms, between which are still smaller interspaces, which admit of the passage of fluids," &c. (p. 31). A sad shortcoming of this theory is the absence of all proof of the process of formation here said to take place.

As another example of Mr. Lobb's mode of reasoning, the following may be quoted: "Carbonic acid gas is constantly, day and night, winter and summer, although in varying proportions according to circumstances, being excreted by the blood in the lungs; the repair of tissue surely does not require this immense waste of material. The most idle man—the fat unwieldy inhabitant of the Eastern harem, who is afraid to move lest she should lessen her value in the eyes of her lord by losing a portion of her obesity, eats largely. Merely to throw off this waste from the lungs? Surely not; there must be a cause, and it is this.

"The nutriment absorbed by the lacteals, converted into albumen, fibrine, and blood cells, is conveyed into the most minute interstity of the organism by the capillaries; here the oxygen brought by the blood seizes upon some hydrocarbon with which to unite, giving rise to molecular change—to currents of electricity; these currents are collected by the nerves always accompanying the vessels, and serve to feed the nervous system; at the same time, some portion correlates into animal heat, &c. It is then to feed the nervous system that this tissue-change, beyond that really required for repair, is constantly going forward, and so much carbonic acid is excreted from the lungs. It is not, then, a wilful waste, this apparent carbon; on the contrary, life could not last without it—nervous energy would lessen, the extremities and skin would get cold—circulation would become sluggish, and death eventually ensue" (p. 82).

It is, certainly, a somewhat novel view to regard the carbonic acid given off by the lungs as wasted material, seeing that that gas is commonly regarded as a deleterious product of the decay of some, and the metamorphosis of other tissues, and of the reduction of the carbon of the food, which reduction has especial reference to the maintenance of animal heat. No question of physiology has been more carefully and successfully investigated than that of the sources of the carbonic acid given off from the lungs, and its relationship to the amount and quality of food taken, and of the degree of metamorphosis going on in the different tissues of the body; but Mr. Lobb appears to ignore altogether the results of the researches on this question. Mr. Lobb, moreover, does not seem to be aware that the electrical conditions arising from changes going on in the intimate structures of the body, particularly in the nerves and muscles, have been made the subject of most successful experimental research by M. E. de Bois-Raymond and others, and that, in consequence, theories upon this subject which are not based upon experiment, are neither necessary nor admissible. When Mr. Lobb makes use of the expression "correlates into," *e. g.* "some portion (*i. e.* of the electricity) correlates into animal heat" (p. 83); he betrays a singular misapprehension of the signification of the term correlation.

In the second part of his work, Mr. Lobb treats of "certain affections of the nervous system, the symptoms of which are obscure, and which, if not alleviated, would develop themselves into organic degeneration, fatal disease, or

insanity." He expresses the opinion that the affections of which he treats depend upon "partial paralysis of some portion of the sympathetic system of nerves, either of their centres or their peripheric terminations, thus upsetting the healthy process of digestion and assimilation in some portion of its extended course, causing functional derangements, nervous irritability, and frequently sympathetic complication of the most important organs" (p. 124). He discusses the nervous affections which accompany certain morbid conditions of the urine, Bright's disease, and diabetes. He discusses, also, spermatorrhœa, stammering, hysteria, chorea, and epilepsy; diet and regimen, certain medicinal preparations, and the therapeutics of galvanism and electro-magnetism. He adds nothing new to our knowledge of the affections of which he treats, and his therapeutics are in great measure derived from the peculiar views which he entertains on the physiology of digestion and assimilation.

That portion of Mr. Lobb's work which is devoted to spermatorrhœa would appear to be written rather for the public than the profession.

The Human Mind in its Relation with the Brain and Nervous System. By DANIEL NOBLE, M. D. (London: Churchill, 1858.)

Dr. Noble entertains several opinions upon several points in physiological psychology which differ from those usually taught. These opinions, Dr. Noble first made known in his work on "Psychological Medicine," and he now, in a small volume, develops his views more fully. The work forms an interesting epitome of physiological psychology, and it will very probably attract considerable attention, even from those who, like ourselves, do not entirely coincide in Dr. Noble's views.

The most noticeable of the opinions advanced by Dr. Noble are, perhaps, the following: He is disposed to think that the vesicular nuclei within the lateral lobes of the cerebellum, the corpora dentata, constitute the encephalic site of common sensation; and he believes that, in all probability, the optic thalami and corpora striata form the ganglionic centres of emotional sensibility. He dissents, also, from Dr. Carpenter's theory of *unconscious cerebration*, and his remarks upon this question are of considerable interest. He writes thus:—

Unconscious Cerebration.—"I conceive that the particular facts which seem to countenance the theory of unconscious cerebration, will certainly admit of some more obvious and simple interpretation than one which renders it necessary to regard nerve substance as elaborating and perfecting thought *without thought*; a process, it appears to myself, which would not be altogether unlike the production of melody by a notoriously unmusical instrument, without the sensible manifestation of sounds.

"I would here propose to the reader's attention a fundamental consideration bearing upon this question, which is that the human consciousness, apart from other analyses of which it is susceptible, is traceable under the two forms of *direct* and *reflex*. In the former cases, ideas are in some sense automatic, and for the most part transient; in the latter, they are, in their origin, to some extent voluntary; or, springing up spontaneously, they become designedly retained in the consciousness, and constitute the material, so to speak, of an objective regard. In solitary musing, when there is no intentioned application of the mind to any subject, but rather a passive contentment in our emotional states, consciousness is mostly of the direct character; and, under such circumstances, thoughts and feelings evolve themselves involuntarily, without any sort of effort or purpose. From time to time, however, these mental products are arrested by a reflex act, and the mind involuntarily turns in upon its own thoughts and feelings, thus contemplating not only that which it knows and feels, but at the same time as knowing and feeling.

"Now, although we ordinarily remember facts and mental processes very much in proportion as they have engaged the attention and a certain reflex consideration at any time, this rule is by no means absolute. Ideas and feelings once experienced may at any time revive in the consciousness, and yet not always be recognized as having previously had existence, particularly when,

at former periods, they have never been subjected, by attention, to a reflex mental process. Undoubtedly, under these latter circumstances, numberless thoughts, and reasonings, and ideas of external occurrences, pass forever from the consciousness; but this is far from being always the case; again and again will they return, without any systematic identification. And are not most of the phenomena cited by Dr. Carpenter in support of his theory of unconscious cerebration explicable by these laws of spontaneous thought, according to which our mental operations are frequently unremembered when repeated. 'Of the thoughts which occur to us suddenly, and which appear to us purely spontaneous, not a few are reminiscences, more or less faithful, of what we have before read, heard, or thought; and, consequently, they proceed from a preparatory fact, which we do not remember.' (*Balmes*.)

"And yet this recovered thinking, when attentively regarded, will sometimes seem to have the lucidity and perfection of a special revelation, and may well seem as though it were the product of some unconscious operation of the mental organ. Still, by careful consideration and examination, we shall at times procure demonstration of the contrary. In composition, we frequently hit upon an idea, or a word, or the turn of a phrase; it strikes us as a happy thought, and appears to be the spontaneous evolution of our own minds. We afterwards discover, possibly by an accident, that we had heard or read it, yet we had forgotten all about it, and had believed it to be our own. And can we doubt that, in the same way, we sometimes recall our past thinking, deeming it to be new, because we have no conscious remembrance of it? Through ignorance of these laws of thought, or inattention to them, unjust accusations of plagiarism are sometimes made; but 'a writer is not a plagiarist, although he makes ideas his own which have originated with others. And it is often true that man imagines he creates, when he only recollects.' (*Balmes*.)

"In more particular illustration of these phenomena, it may be noted that a book shall be read and soon laid aside; the reader may then pass on to something else, and in a very brief period be unable to render any very clear account of what he has read. Some months afterwards, when the subject of the work becomes a topic of conversation, he is probably surprised that he has derived considerable information from it. How do we explain facts of this kind? Why, in many of such cases, the person situated as supposed in this illustration will discover, upon attentive self-examination, that in his passive musings the contents of the book had been in his spontaneous thoughts; and that, under such circumstances, an acquaintance with its subject had been gradually, but still consciously, perfected. This mental process may probably be with some accuracy designated *involuntary* and inattentive *thinking*, but not with justice an *unconscious action of the brain*. I am decidedly of opinion myself that the explanation now offered of these well-known phenomena will more or less cover all the psychical processes that have been cited to establish a doctrine of unconscious cerebration" (pp. 95—99).

Illustrations of the Constituents of Urine, Urinary Deposits, and Calculi.

By LIONEL J. BEALE, M. B., F. R. S. (London: Churchill, 1858.)

Dr. Beale has conferred a boon upon the profession by the publication of this work. The drawings are accurate and very numerous, the descriptions of the general characters of the deposits are clear, and the work is compact, and it will prove to be a valuable aid to the practitioner and student in examining the urine microscopically.

The Unity of Medicine; its Corruptions and Divisions as by law established in England and Wales, with their Causes, Effects, and Remedy. By a Fellow of the Royal College of Surgeons. (London: R. Baillière, 1858.)

A Fellow of the Royal College of Surgeons treats learnedly of the corruptions and divisions of medicine in England and Wales, investigating their causes and effects and seeking their remedy. He regards the existing division of the medical profession into physicians, surgeons, and apothecaries, as arising from three great periods of corruption in medicine. The first great period of corruption began with the invasion of medicine by priests and monks, during the

sixth and seventh centuries. From the seventh to the sixteenth century medicine was allied with priests and monks—the period of priest-physicians. In 1518 medicine was emancipated from priests and monks, and the pure physician appeared. The second great period of corruption began with the invasion of medicine by barbers, during the twelfth and thirteenth centuries. From the thirteenth to the eighteenth century medicine was allied with barbers—the period of the barber-surgeon. In 1745 medicine was emancipated from barbers, and the pure surgeon appeared. The third great period of corruption began with the invasion of medicine by apothecaries in the seventeenth and eighteenth centuries. From the eighteenth century to the present time medicine has been allied with apothecaries—the period of the apothecary-physician. Purity and unity of medicine is sought for, and to obtain this medicine must be emancipated from apothecaries, and united with surgery under one common denomination. This course, according to our author, is the only remedial measure for the present corruptions and divisions in medicine.

Evil Results of over-feeding Cattle. A new Inquiry. By FREDERICK J. GANT, M. R. S. C. (London: Churchill, 1858, pp. 39.)

Mr. Gant has published the results of certain examinations of the viscera of several sheep, pigs, and horned cattle, which were exhibited at a late exhibition of the Smithfield Cattle Club, and for which, as specimens of healthy rearing and feeding, prizes of the highest class had been awarded. A greater or less degree of fatty degeneration of the heart was found in every instance. Mr. Gant believes that, "under the present system of rearing and feeding, one disease is of most frequent occurrence—namely, *conversion of the heart into fat*" (p. 22). He is supported in this opinion by the testimony of Professor Luckett, who re-examined the hearts in question, and confirmed Mr. Gant's observations.

"I need scarcely advocate the special importance of this result," Mr. Gant writes; "for no one can dispute the fatal tendency of a disease by which the structure of an organ most essential to life has degenerated into fat. The stomach may, indeed, prepare food for the production of blood, and the lungs and kidneys may purify it of excrementitious matter, but these departments of the blood-factory are only subsidiary to the heart, whose special duty it is to propel the vital fluid to the most distant recesses of the body, that every part may be nourished and renovated. Yet I found the great central organ more than any other damaged. In the sheep, particularly, the heart has lost its contractile and propelling power, and was converted into a flabby, inert lump of fat. This change had, moreover, ensued not through the mere accumulation of fat around the heart, whereby its contractile movements would be mechanically impeded. Such an accumulation had, indeed, taken place in the bullocks and in the Devon heifer of the Prince Consort's more especially. Nor did the change in question imply the mere interstitial deposition of fat between the muscular fibres, of which the heart *should* chiefly consist, but the actual *substitution* of fat for fibrillæ *within* the fibres. The fat referred to may itself be regarded as the superfluous food with which the animal had been gorged. It was first deposited in all *loose* parts of the body, these being most adapted for its accumulation—beneath the skin, and around the kidneys, stomach, intestines, and heart. At length, such localities being overloaded, the fat invaded the muscles themselves, by passing in between the fibres. Thus it produced the *streaked* appearance of meat, a condition which, within the limits, in no way interferes with the health of the animal, nor impairs the nutritive quality of its flesh for food. On the contrary, fat itself is a necessary constituent of the most nutritious food; and by no provision can a due proportion of this ingredient be secured so effectually as when it is thus intermixed with the substance of the muscles themselves. Thus, each mouthful of meat contains a wholesome and agreeable proportion of fat, but beyond these limits the animal cannot be fattened without impairing its own health, and also its nutritive value as human food. The two questions, of rearing cattle, and their dietetic value, must therefore also be referred to their condition as discovered after death" (pp. 32-34).

II.

REPORT ON THE PROGRESS OF SURGERY.

A Sketch of the Principles and Practice of Subcutaneous Surgery, being the Oration delivered before the Medical Society of London in 1857. By W. ADAMS, F. R. C. S., Surgeon to the Royal Orthopædic Hospital. (London: Churchill, 8vo. 1857, p. 67.)

In this sketch M. Adams lays down with great ability the principles and practice of subcutaneous surgery, and in doing this he vindicates the claims of John Hunter to be considered as the real discoverer of the "subcutaneous method"—a method which may well be regarded as the most important innovation in modern surgery.

John Hunter, in his "Treatise on the Blood, Inflammation, and Gun-shot Wounds," published in the year 1794, points out as a great fundamental principle, in reference to the healing of wounds, the difference between those two forms of injuries, of which one is subcutaneous, the other open to the air. He says—"The injuries done to sound parts, I shall divide into two sorts, according to the effects of the accident. The first kind consists of those in which the injured parts do not communicate externally, as concussions of the whole body or of particular parts, strains, bruises, and simple fractures, either of bone or tendon, which form a large division. The second consists of those which have an external communication, comprehending wounds of all kinds, and compound fractures. Bruises which have destroyed the life of the part may be considered as a third division, partaking, at the beginning, of the nature of the first, but finally terminating like the second. The injuries of the first division, in which the parts do not communicate externally, seldom inflame, while those of the second commonly both inflame and suppurate.*"

The deviations from this law in particular instances are then adverted to. Here, then, is the law of the reparative process in these two great classes of injuries.

"In these sentences," observes Mr. Paget, "Hunter has embodied the principle on which is founded the whole practice of subcutaneous surgery; a principle of which, indeed, it seems hardly possible to exaggerate the importance."†

It is the more important, at the present time, that Hunter's claim should be distinctly recognized, because M. Guérin, to whom we are much indebted for the advancement of subcutaneous surgery, and to whom one of the prizes of l'Académie des Sciences of Paris has lately been awarded in acknowledgment of these services, lays down precisely the same law, and in the same words as those quoted from Hunter, without even so much as the mention of Hunter's name. The introduction to M. Guérin's "*Essais sur la Méthode sous-cutanée*"‡ commences with the following sentence: "I have proposed in this memoir to establish a new principle, and to indicate some of the applications of which it is susceptible." And in the following page he observes: "I bring it forward as a principle, that all wounds made under the skin and kept from the contact of the air, neither inflame nor suppurate, and organization takes place immediately." He then tells us that he has proved this principle by numerous experiments on animals and operations on man; that he proposes to make it the

* See "Hunter's Works," by J. F. Palmer, vol. iii. p. 240.

† "*Lectures on Surgical Pathology.*" London, 1853.

‡ Paris, 1841.

basis of a general method pointed out in the memoir; and that "the principle of this method is to know that the wounds excluded from the air neither inflame nor suppurate."

It is enough for our present purpose to place these facts side by side, without comment; but it must at least be regarded as additional evidence of the truth of the observation, that those who trace the progress of modern surgery to its source will not fail to discern, in the principles which Hunter established, the germs of almost all the improvements which have been since introduced.

The illustrations given by Hunter, in proof of the general law above adverted to, are sufficiently conclusive. No surgeon, he tells us, could have failed to observe the difference between a simple and a compound fracture, in reference to the progress and result of the case. How rarely is a simple fracture followed by suppurative inflammation, and how seldom does a compound fracture unite without suppuration, even when the wound is small and apparently insignificant.

Here, then, we have two similar accidents produced in the same way, by the same amount of mechanical violence; or it may be that the simple fracture is occasioned by a greater amount of mechanical violence than the compound fracture. The only difference is, that an external wound exists in the one case, and not in the other; yet how different the results! And who can suppose that the difference depends upon the additional injury to the soft tissues—skin and cellular tissue—which alone distinguishes the compound from the simple fracture.

How severe, also, are the results following open wounds, though never so small, communicating with joints, so frequently fatal to the limb or the life of the patient. And how seldom does any inflammation follow a subcutaneous opening into a joint, if made with proper precautions and followed by appropriate treatment.

These facts are of the utmost importance in a scientific and practical point of view, and suggest reflections of the gravest nature, in reference to the principles of treatment to be adopted in certain injuries.

In very many surgical operations, it is true that the surgeon has no choice with respect to the mode of procedure, whether by open or subcutaneous wounds; but, in many instances, modern surgery has proved that the old plan of open wound can be advantageously superseded by the subcutaneous method, and operations which but a few years or months since were constantly performed by open wound, are now being done subcutaneously.

Mr. Adams especially endeavors to show that, by observing the law pointed out by Hunter, the surgeon can, in many operations, so adapt his mode of procedure as to prevent or regulate the degree of inflammation which might be expected to follow an operation; in fact, that, in no small or unimportant degree, he is enabled to establish the conditions which influence or direct the reparative process in wounds according to one or other of the various processes of healing.

1st. He can perform many operations in the most delicate and important regions, so that no inflammation may follow; such as the subcutaneous operation for the removal of loose cartilages; the section of articular ligaments for the reduction of dislocations, the cure of distortions, &c.; the needle operations for cataract, drilling, &c.; the evacuation of the fluid contents of cavities; the freeing of depressed cicatrices, &c. And, with the object of avoiding inflammation, he is also enabled to combine the object of promoting the development of a new connective tissue, where this is necessary to the restoration of function; as in tenotomy and myotomy.

2d. He can avoid excessive inflammation when its occurrence in some degree cannot be prevented, as in the method of "forced rupture," or forcible extension of partially ankylosed joints; the operation for hernia without opening the sac, &c.

3d. When a limited amount of inflammation is necessary to the reparative process, he can purposely excite it and regulate its intensity, not with absolute certainty, but to a great extent, and generally so as to avoid the dangers of

suppuration and pyæmia; as in the various operations for ununited fracture; the several methods of obliterating serous cavities, as in hydrocele, bursæ, &c., by the introduction of foreign substances and other operative procedures; as in Wutzer's operation for the radical cure of hernia, &c.; the various operations for obliterating varicose veins; the cure of nævi; the obliteration of fistulous canals by subcutaneous ligature, &c.

4th. When inflammation already exists, he can, by subcutaneous operations, sometimes arrest the inflammatory process, or avert some of its most troublesome and unfavorable consequences; such as the painful tension of certain structures, the formation of external fistulous openings, the extreme distension of cavities, &c. Of these results we have examples in the subcutaneous incisions for the relief of pain in inflamed periosteum; the subcutaneous method of opening bubo; and also other abscesses, such as the psoas and lumbar abscess; the relief of distended serous cavities, as in pleuritis, &c.; and also of distended joints.

5th. He can so modify the mode of procedure in certain operations, which must necessarily be performed by open wounds, as to limit the inflammation which might be expected to follow, or in some instances entirely to prevent its occurrence. In these operations, continued exposure to the air is avoided, and therefore they are described as "open wounds quickly closed." The operation of extraction for cataract, and the improved method of removing the globe of the eye, are good examples of this series.

It is undoubtedly true that many of the subcutaneous operations which have been mentioned, have not been adopted as the result of a knowledge of the *subcutaneous law* which governs the reparative process, but have been slowly arrived at by the practical suggestions of surgeons who have observed certain effects, without tracing these effects to their causes.

It is, indeed, full time that old notions respecting the treatment of wounds should be exploded, and that the great truth which is involved in the "*subcutaneous method*," and which is so ably advocated by Mr. Adams, should be both recognized and put in practice.

On Squinting, Paralytic Affections of the Eye, and certain forms of Impaired Vision. By C. HOLTHOUSE, F.R.C.S., Surgeon to the Westminster Hospital, &c. (12mo. Churchill, 1858, pp. 210.)

In this work the author endeavors to show that the opposite opinions are entertained by some of the leading ophthalmologists of the present day, in reference to the treatment of strabismus, are owing to their imperfect knowledge of its pathology. Mr. Holthouse accordingly devotes a considerable portion of his work to the discussion of this subject, and after giving an analysis of 378 cases of strabismus, he considers himself warranted in drawing the following conclusions:—

1st. The most frequent *exciting cause* of strabismus, is some lesion of the nervous centres or nerves; and the next in frequency are inflammatory affections of the eyes.

2dly. The *essential or immediate cause* of confirmed non-paralytic strabismus is a shortening, with or without hypertrophy, or simple hypertrophy, of the orbital muscle in the direction of which the eye is drawn.

3dly. These muscular changes may be associated with thickening and contraction of the conjunctiva and subconjunctival tissue, and an adhesion of these to the sclerotic coat of the eye.

4thly. The above-named changes may affect both eyes, though they are more commonly confined to one eye—in the former case, "it is immaterial which eye is operated on;" in the latter it is not immaterial, but, on the contrary, essential that the affected eye should be distinguished and selected for the operation.

5thly. The imperfect vision of the strabismic eye may either precede and be the cause of the distortion, or may follow and be the consequence of it. In the former case, the operation of dividing the affected muscle will not remove the imperfection of sight; in the latter it will.

6thly. The morbid changes referred to in deductions 2 and 3 are competent to explain all the phenomena of strabismus.

7thly. The phenomena of strabismus cannot be accounted for on any other hypothesis.

On the subject of treatment the author remarks: "If the view I have taken of the pathology of strabismus be correct, it must be obvious that no treatment can be of any avail in confirmed squint, except division of the shortened muscle" (page 130). He is "well aware that incipient and slight cases of squint may sometimes be cured without operation, and that instances are not wanting, in which more confirmed distortions have been got rid of by persevering efforts on the part of the patient; but even when such efforts have been attended with success, the accompanying impairment of vision is not removed. Now, dividing the muscle by which the strabismus is produced not only rectifies the malposition of the eye, but improves its vision, and on these grounds I hold the operation to be preferable to all other methods of treatment. (Preface v.)

In the mode of performing this Mr. H. still advocates the sub-conjunctival method, which was first recommended and put into practice in this country by Mr. Brooke in 1845; again strongly urged and its advantages set forth by himself in 1854; and lastly by Mr. Critchett in 1855. In opposition to this last-named gentleman, who has asserted that both eyes are equally implicated, and that it is therefore immaterial which is selected for operation, Mr. Holthouse maintains that this is not the rule but the exception, and that in most cases it is material to select the worse eye, and to operate on it only. To determine which is the bad eye, Mr. Holthouse employs what he calls the vision test, the value of which depends on the fact that in about 90 per cent., or more, of all strabismus cases, the sight of the most distorted eye is worse than the other. After giving some judicious rules for the operation, Mr. Holthouse expresses his conviction "that there is no operation in the whole range of surgery, which is so entirely unobjectionable and free from risk; complete failure can only arise from its imperfect performance, while improvement may be predicated in every case, and perfect success in most" (page 140).

The remainder of the work is devoted to paralytic affections of the eye, and certain forms of impaired vision, in which the author endeavors to prove, and we think successfully, that there is a particular form of amblyopia which is due to muscular action, and which, from its being most frequently observed in strabismus, he has termed strabismic vision. "With regard to the nature of the imperfection," observes Mr. Holthouse (page 173), "it must first be clearly understood, that I do not include under the term strabismic vision every kind of imperfect sight which may accompany strabismus; all I maintain is, that there is, in addition to any and every defect of sight which may coexist with the deformity, this special one also superadded."

After an enumeration of the symptoms, for which we must refer our readers to the work itself, he continues: "It differs from myopia in being improved by convex lens—it differs from presbyopia, in requiring the approximation of objects to the eye—from asthenopia, in being persistent and not intermittent—from limited adjusting power, in the total absence of all power of adjustment—and it differs, lastly, from certain cases of incipient amaurosis, in its being remediable by operation. What now is the nature of the defect? Is it a dioptric or a sentient one?"

"The symptoms we have described as characteristic of the affection, show that it partakes of the nature of both these defects. In slight cases it would appear to be chiefly, if not entirely, a dioptric defect; in bad cases the sentient part of the eye also would appear to be implicated; and in all, the defective sight, however it may vary in degree, is brought about by abnormal muscular action" (pages 174, 175).

In support of this position the author refers to several cases given in his work, of which the following is perhaps one of the most striking; it is that of a gentleman, 41 years of age, who for the last 5 years had become affected with strabismus of the left eye; previous to this occurrence "both eyes were highly myopic; but afterwards the near-sightedness of the squinting eye was much

diminished, and its vision improved. It would appear, therefore, that the slight pressure which must be exerted on the strabismic eye, in an antero-posterior direction, whenever it is straightened, is sufficient to render it slightly presbyopic or to lengthen its focus; hence the improvement of vision in the case just referred to" (page 177). The whole of this chapter on muscular amblyopia is thoroughly original and well worth perusing.

Cases illustrative of a New Method of Treating Deep-seated Inflammation of the Globe, or Acute Glaucoma. By Mr. CRITCHETT, Surgeon to the Royal London Ophthalmic Hospital. ("Ophthalmic Hospital Reports," No. 2, 1858.)

When diseases invade the deep-seated structure of the eye, it is extremely difficult to give to them a correct and scientific nomenclature; hence it is that such terms as amaurosis and glaucoma are employed to designate a great variety of morbid phenomena. It seems probable that the extensive use of the ophthalmoscope, and the careful microscopic investigations that are carried out in the present day upon extirpated globes will enable us to employ a more rigid and exact set of terms. The inconvenience at present experienced results from the employment of these terms to designate more than one group of symptoms, so that some confusion is apt to result in the minds of ophthalmic surgeons, in conveying to each other the results of their experience. Nevertheless there are certain well-marked groups of symptoms both objective and subjective, so regular in the order of their sequence, that every practical ophthalmic surgeon at once recognizes them; and in proportion to the severity of the disease, to the rapidity with which it develops, to the extreme pain that accompanies it, to its destructive effects as regards sight, and to its intractable character, are the leading features of the disease impressed upon the memory. The disease of which the cases about to be related are types, usually occurs rather past the middle period of life, and in persons of feeble constitution, either originally, or as the result of some debilitating cause. It generally attacks one eye at a time, and there is frequently a considerable interval between the invasion of the first and second eye. The symptoms come on very suddenly, and proceed with great rapidity. At the outset of the attack the pain is of a most intense character, extending to the brain, and lasting many hours, sometimes two or three days; there are frequent flashings of light, and the sight is rapidly and seriously impaired, and if the disease pursues its course in its worst form, is permanently destroyed. On examining the eye shortly after the onset of the disease, the appearance is very characteristic and peculiar, the pupil is fixed and widely dilated; the humors are dull and muddy, and cannot be fully lighted up by the ophthalmoscope; the surface of the globe is of a bluish-red color; the deeper layers of vessels appearing chiefly injected. The anterior chamber is reduced in size, and the lens seems thrust forward into the pupil. The globe is tender to the touch and of stony hardness. At a subsequent stage, and when all perception of light is gone, these appearances undergo some important changes and modifications which are not quite uniform in their character. At one or more points the sclerotic frequently thins and bulges, the humors become much discolored and of a greenish hue, and the lens cataractous. The sclerotic looks thin and of a dark color, as if the choroid could be seen through it; and upon the surface are seen some large blue distended vessels, showing that the chief onus of returning the blood is thrown upon these superficial veins.

It is to the earlier stages of this disease that Mr. Critchett is desirous of directing attention. It is difficult to localize the precise seat of the inflammatory action of this stage, but it is probably the retina. The distinguishing feature of such cases, that which causes such intense agony, and so rapidly impairs and destroys the sight, is the distension to which the globe is subjected; the perfect balance that subsists in the normal state between the fluids of the eye and their firm inelastic fibrous case is lost, and the latter is placed in a condition of extreme tension by the former; a tension that is constantly increasing until the sclerotic thins and yields to the pressure from within, or until the impetus of the disease exhausts itself. All the ordinary methods of treatment are utterly useless in this disease; the most active antiphlogistic means, such

as bleeding, mercury, antimony, &c., exert not the slightest influence in modifying it. All practical ophthalmic surgeons will set their seal to this statement. Nor is this to be wondered at, since the real cause of the acute symptoms is left in full force.

Reflecting on these points, it seems that two indications are especially required: 1st, to relieve the pressure and re-establish the equilibrium between the containing and the contained; and, 2d, to leave for a time a sort of safety-valve to prevent such equilibrium from being again disturbed. With a view of effecting this double object, Mr. Critchett recently performed the following operation. He introduces a broad needle through the cornea, close to its junction with the sclerotic, and allows the aqueous humor to escape. He then draws out a portion of the iris with a blunt hook, and leaves it in the wound; or, if it protrude much, he removes a portion, and leaves the remainder in the wound. The immediate effect of this operation is to remove the tension of the globe, and relieve the pain; the secondary effect is the gradual and steady improvement of the sight; and the remote effect is, apparently, the removal of the tendency to fresh attacks. The idea of puncturing the globe for the purpose of relieving tension in cases of internal inflammation, is very old. It was suggested and practised by Mr. Wardrop and others, and ever since Mr. Critchett has lectured on diseases of the eye, he has advocated the treatment; and in a lecture published in the "*Lancet*" of September 9th, 1854, he relates a case in which he put this plan in practice with a very successful result, and urges the treatment of similar cases.

Recently Von Gräfe, of Berlin, has practised a modification of the operation in a large number of cases of acute and chronic glaucoma, his plan being to remove a large piece of iris. The objection to the method of mere puncturation seems to be the rapidity with which the wound heals, and the tendency to relapse into the former condition of tension. And the advantage of drawing out a portion of the iris seems to be to allow time for the adjustment of the normal tension, and perhaps also the establishment of a communication between the anterior and posterior chambers.

Mr. Critchett's object in the present paper is briefly to relate some cases of acute and subacute inflammation of the globe that have recently been subjected to this operation.

CASE 1.—In June, 1857, I was requested by my friend, Mr. Goude, of Cheap-side, to see a middle-aged lady suffering from the following symptoms. Her right eye was the seat of deep aching pain, of an unremitting character, great intolerance of light, and lachrymation; the sight was so imperfect that the back of the hand could not be distinguished from the front, and the fingers could not be counted. The sclerotic vessels were highly injected; the pupil was fixed and widely dilated, and the humors looked dull and dirty; the left eye had been inverted and defective from infancy.

It appeared that this lady had been attacked with severe pain and inflammation of the right eye about a week previous to my visit, resulting in dimness of vision, which had gradually increased. She had been cupped on the temple, and subjected to rather active antiphlogistic treatment, without any apparent mitigation of the symptoms. When I saw her I found the pulse quick, weak, and irritable, and the spirits much depressed by the severity of the pain, and by the dread of impending blindness; the appetite was bad, and sleep much interrupted. I placed her under the influence of chloroform. I then passed a broad needle through the cornea, close to its junction with the sclerotic, and with the blunt hook drew out a portion of iris, some of which I cut off, leaving the remainder in the wound. The immediate effect of this operation was entirely to remove the pain, to restore the natural tension of the globe, and slightly to improve vision. The pain never returned; and from day to day the sight gradually but steadily improved, until at the end of three weeks average-sized print could be read; and at present the sight is as good as before the attack. The pupil was of course altered in shape, but had recovered about its average size and mobility.

CASE 2.—About two months after this first case, the wife of a large Sussex farmer sent for me, suffering in the following way. The left globe was the seat

of acute inflammation. The pupil was so widely dilated that the iris presented merely a narrow ring. The anterior chamber was diminished in size, and the humors were of a dull aspect, and could not be lighted up with the ophthalmoscope. Vision was so much obscured that only the dim outline of objects could be made out. There was constant severe pain in the globe, the constitutional powers were at a very low ebb, the pulse very small and feeble. No sleep could be obtained, and there was distressing nausea of the stomach.

An interesting feature in this case was, that the right eye had been attacked in a precisely similar manner about nine years ago, and at the end of six weeks, in spite of very active local and constitutional treatment, sight was entirely lost. I then found a fixed and widely dilated pupil, a hard globe, secondary cataract, and all the evidences of a spoiled eye. Immediately I was called to this case I performed the same operation as in the one I have just related. Considerable care was required not to wound the lens, which was thrust somewhat through the pupil and near the cornea. The result was most striking and satisfactory. The pain and sickness immediately ceased and did not recur; sight steadily improved from day to day, and in three weeks the patient returned into the country, able to read a good sized print. The pupil became much smaller and active. I have since heard a very favorable report, and that the sight is as good as ever it was.

CASE 3.—This case came under my care at the Royal London Ophthalmic Hospital. William Almerott, a man *set.* 34, a working engineer, was led to me on September 4th, having lost all power of recognizing objects, and retaining very little sight beyond the mere perception of light. On examining the case the left eye was found in a state of chronic inflammation, the sight having been entirely lost from injury. About five years ago the right eye was the seat of acute inflammation of the globe, with widely dilated pupil, and a thin layer of lymph over the surface of the capsule of the lens. The history of the case was curious and instructive.

About five years ago, when at work, a piece of metal flew into the eye, wounding the cornea and sclerotic, the iris and lens; this was followed by severe pain and inflammation, and by total loss of sight; the globe became soft and diminished in size, but remained tender to the touch, and at times was painful. Since then the man has had occasional attacks of dimness in the other eye when at work, which lasted some hours, and then passed off entirely. Five days before I saw him he was seized in the night with intense agonizing pain in the globe, which lasted several hours, and in the morning he was nearly blind. A medical man was sent for, and he was placed under active antiphlogistic treatment. The pain did not recur, but a dull aching remained in the globe, which was of stony hardness, and the sight remained in the same condition as when he was led to me. All my previous experience induced me to take a most unfavorable view of this case. The intensity of the pain, the rapidity with which previously good sight had been nearly destroyed, the extreme dilatation of the pupil, the dulness of the humors, and the evidence of inflammatory effusion on the capsule, all conspired to give a gloomy aspect to the case. It was, therefore, with feeble hopes of success that I proceeded to operate. When under the full influence of chloroform, I first removed the injured and diseased globe, and then performed the same operation as I have previously described on the right eye, drawing out a piece of iris and leaving a portion in the wound. On recovering from the effects of the chloroform he stated that he was now quite free from pain, and that he could see better than before the operation. Since that time he has had no return of pain; the sight steadily improved from day to day, and at the end of a fortnight he could see to read moderate-sized print, though everything still looked misty. The pupil, though of course altered in shape, has recovered its normal size and responds to the stimulus of light; the thin layer of lymph is still visible over the capsule, and it seems probable that the same slight cloudiness of vision will remain, though not to such an extent as to prevent him from following his employment. I think this is the most striking and satisfactory case I have yet had. It illustrates forcibly the injurious sympathetic effect of a damaged and spoiled eye, in which a smouldering inflammation still lingers, upon its com-

panion; inducing, first, attacks of congestive, but temporary dimness, and then acute inflammation of the globe, and it further shows the steady recovery of the recently-attacked organ when the extreme tension to which it had been subjected is effectually and permanently relieved by operation.

CASE 4.—This case was that of a lady, who had been many years a governess, and had recently resided in the "Home for Gentlewomen," in Queen's Square. She first came under my care at the hospital, about six years ago, suffering from deep-seated disease of the left globe, combined with cataract and partial staphyloma, which occasioned her severe pain. For this I removed the anterior part of the eye (an operation that was usually performed at that time in similar cases). The globe gradually diminished and healed, and an artificial eye was subsequently worn. Early in the spring of this year this lady had a slight attack of hemiplegia, from which she slowly recovered, and for which she was subjected to rather severe discipline; low diet, active medicines, and bleeding. In the autumn of this year she was suddenly attacked with severe pain in the right eye and dimness of vision. This continued to increase until on the fourth day she could not distinguish even large objects, and when I saw her six days after the attack, she could only distinguish light from dark. I found a widely dilated pupil, a dull state of the humors, and all the symptoms I have previously described. I performed immediately the same operation as in the other cases, and the result has been equally satisfactory—the pain almost immediately subsided, and the sight gradually but steadily improved. I saw her about a fortnight ago. The pupil was movable, and she read moderate-sized print to me with the aid of her usual glasses.

CASE 5.—This, the last case that I would briefly notice, is one that seems to yield a sufficient amount of negative evidence in the same direction as those I have already related, to deserve notice. Early in November, I was requested by my friend, Mr. Boar, to see a lady suffering from severe inflammation of the right globe, of about a week's duration. The pain, which was somewhat mitigated when I saw her, had been most intense. The pupil was widely dilated, the humors were dull, and there were all the usual symptoms of deep-seated disease of the globe. The sight was much obscured. This state of things had existed about four days. I urged the operation that I had performed in the other cases with such signal success, but I could not succeed in obtaining the consent of the patient. The result has been that, although the pain has gradually subsided, the pupil has remained widely dilated, and the sight is permanently and seriously impaired.

The merit of the operation is, that it is easily and quickly performed, and that the wound speedily heals; and the disadvantage of it is, that it produces a permanently deformed pupil. This objection is in some measure obviated by an ingenious suggestion of Mr. Bowman: That the pupil should be drawn nearly directly upwards, so as to conceal the irregular portion beneath the upper lid. It would be foreign to the object of this paper to inquire how far this proceeding is applicable to other cases of a chronic character, as its original promotor believes.

On the Treatment of Lachrymal Obstructions. By Mr. BOWMAN, F. R. S., Surgeon to the Royal London Ophthalmic Hospital. ("Ophthalmic Hospital Reports," No. 1, October, 1857; No. 2, January, 1858.)

As early as 1851, Mr. Bowman began to treat all cases of lachrymal obstructions by slitting up the punctum and by passing probes of suitable size through the upper or lower canaliculus. In this way he avoided the inconveniences of the opening in the skin required in the former objectionable treatment by the style; and from the very beginning he establishes a permanent opening, unseen, and attended by no inconvenience, through which the use of the treatment by probes can at any time be at once resumed in the event of relapse. In place of the old operation by the style—indeed, an operation in every respect clumsy and unsatisfactory—an operation is introduced which is both slightly and satisfactory.

In the course of his investigations on this subject, Mr. Bowman has kept

constantly in view the analogy of obstructions of the lachrymal ducts with those of the urinary passages. These obstructions are in many respects closely allied, and the history of urethral strictures may furnish some hints which are applicable to the treatment of lachrymal strictures.

Before the proposal to slit up the punctum, some anatomists may have been aware that the canaliculi were capacious ducts, large enough to admit an ordinary probe; but, certainly, surgeons took no account of that important fact. They have been syringed, and probes have been passed down them; but the instruments employed were only such minute ones as the puncta would admit, namely, of the size of a horse-hair. It may be even true that such probes may have been passed into the nose, but their effect, even then, can have been only such as would be produced on a urethral stricture if the surgeon were restricted to the use of the smallest urethral bougie. They may have passed the stricture, but can have done little to dilate or cure it.

When Mr. Bowman first began to slit up the puncta he became aware that the canaliculi were naturally capacious enough to admit a probe of one-twentieth of an inch in diameter or more; and finding, not unfrequently, that strictures existed in the canaliculi, sometimes about the middle, but oftener close to the sac, he had a series of probes constructed, reaching from a fine hair probe (No. 1) to one of one-twentieth of an inch diameter (No. 6). For convenience in use he has three probes, the six ends of which give the six sizes required, and the larger of which are so bent as to facilitate their passage through the nasal duct as hereafter to be noticed.

In the great majority of cases of sac-obstruction, a simple epiphora precedes, for a considerable period, the more inflammatory stages; there is regurgitation only of tears at first, afterwards of mucus, and of pus; the two latter being often rather sudden in their appearance, and often following immediately on a cold or catarrh, or some stomach derangement. The moment the secretions from the lining of the sac become too thick to escape easily, either through the canaliculi or nasal duct, they appear at once to aggravate the inflammation by mechanical distension; and the author was early led to assign much benefit to the opening of the punctum, merely on the ground of the greatly increased facility with which the discharge could then escape on to the eye, either spontaneously or on slight pressure. The punctum, too, having, no doubt, the attributes of a sphincter, is often highly sensitive, and its lips turgid and angry, when the passages are inflamed; and great immediate relief to the whole disease seems often to follow its division—much, perhaps, of the same kind as that which follows the division of the sphincter ani in irritable fissure of the rectum.

The punctum is most conveniently slit up as follows: The patient sits in a chair and leans the head against the chest of the surgeon, who stands behind and bends over. For dividing, *e. g.*, the left lower punctum, the ring finger of the left hand is placed on the skin over the lower edge of the orbit, and fixes it there, while tightening or relaxing the lower canal by a sliding movement of the skin upon the bone—the punctum being at the same time everted. The right hand now inserts the No. 1 probe while the canal is relaxed, and then places the probe between the index finger and thumb of the left hand, which holds it in the canal, and further everts the punctum by turning the probe downwards on the cheek, while the ring finger stretches and fixes the canal by a sliding movement of the skin outwards, toward the malar bone. A fine, sharp-pointed knife, held in the right hand, now slits up the canal on the everted conjunctival aspect, from the punctum, as far as the caruncle, and the probe is raised on its point out of the canal, to make sure that the edge of the punctum has not escaped division. Care should be taken not to slope this little incision obliquely through the tissues it severs, as there is then a broader surface exposed, and greater chance of union by the first intention. To avoid this, it is in all cases desirable to pass a probe across the line of incision, on each of the few ensuing days, to break through adhesions if they form, and to secure patency. If the punctum is slit when already inflamed and discharging pus, there is much less disposition to this primary union than when it is done for simple epiphora.

Having slit up one or both puncta, as may seem desirable, the canals are at once probed to ascertain whether they are of full size. Where the fluids of the sac regurgitate towards the eye there is usually no contraction that may not be at once overcome by a full sized probe (No. 6); but it is well to have noted beforehand, whether regurgitation occurs from *both* puncta, and in the first instance to be content, in ordinary cases, with slitting up the lower punctum, inasmuch as this usually suffices for the cure, and it is through this that the passages can be most conveniently probed in their whole extent down to the nose.

In examining the canal for stricture some experience and tact are requisite to avoid errors, just as in the examination of urethral strictures. The instrument should be handled very delicately, and the canal held by the surgeon in the same way as when the puncta have to be slit, and he should, of course, have in his mind's eye at the moment, the anatomy of the parts with which he is dealing—no force should be used. If No. 6 will not pass, No. 4 or No. 2 may be tried; and if these fail, it is better to postpone further proceedings till a few days have elapsed, and the slit in the canal is permanently established. Speaking loosely of the general result of a great number of cases, Mr. Bowman says that he has not found any stricture in the canals in more than one-fourth, and that the common situation of the stricture has been close to the sac—less frequently about the middle part of the canal. The stricture of the middle parts is commonly in old cases, where there is rigid thickening of the coats, and probing by instruments successively larger suffices to dilate it. The canal should be stretched lengthwise as the probe reaches it, as its passage is thereby facilitated—for it is easy to fold the canal before the point of the probe. The greatest care is to be taken to proceed gently and not too rapidly—as, if a false passage be formed and the wall of the canal torn, the injured part is liable to become more rigidly occluded.

If the exploratory probe is arrested at the point where the canals coalesce and join the sac, the fact may be known by noticing the skin near the *tendo oculi* is moved when the probe is moved, and an elastic resistance is experienced; whereas, if the probe has entered the sac, it hits against the inner bony wall, and the skin is motionless. Where the sac is not distended, attention to this point is particularly necessary, and it is also requisite that the canal should be held on the stretch by the finger on the cheek, otherwise the outer wall of the sack may be pressed against the inner and give a wrong indication, for the opposite walls are very near each other. Care must also be taken, when an obstacle is encountered, to turn the point of the probe in different directions, urging it gently forwards in each, for otherwise it may merely be caught in a fold of membrane at the orifice to the sac. If there is decided obstruction still, the probe may be forced here, and if it does not then at once pass into the sac (and particularly if, the sac being distended, there is no regurgitation by the canal), Mr. Bowman has recourse to the *canula lancet*, described in the "*Annales d'Oculistique*" of 1855-6, and, after piercing the obstruction, immediately passes the largest-sized probe (No. 6).

Such strictures of the canals, when once they admit a No. 6 probe, are treated by its repeated use at suitable intervals, in conjunction with the treatment of the passages below, and therefore they need not be further separately dwelt upon.

With regard to the subsequent steps of the treatment, Mr. Bowman prefers to explore the nasal duct by pushing down the No. 6 probe into the nostril. When the sac discharges pus or mucus, this always has to be done again and again, in order thoroughly to open the duct, and even where the sac is not inflamed, it is satisfactory to have passed the probe once.

The passage of a probe or style in the old method, through an orifice in the skin, is not always an easy task. There is frequently a firm closure of the nasal duct, requiring the use of considerable force to overcome it, and a surgeon without experience is apt to be timid or to make pressure in a false direction. In fact, with the old style or probe, which was always straight, it was often impossible to find the lower orifice of the sac, and the rude force exerted was apt to make the end of the style scrape the surface of the bone,

and detach the membrane from it. When the probe is introduced in Mr. Bowman's method, from the canal, it enters the sac *behind* the tendo oculi, and is in a better position for *finding*, as it were, the orifice of the nasal duct. But to make this proceeding as easy as possible, the author uses larger probes (Nos. 5 and 6, which are the only ones used for this purpose) *slightly* curved at each end in two different directions within the terminal inch or inch and a half, while the central part (or that held by the finger and thumb), is straight, and they are cylindrical in their whole length. The effect of this is that when the probe is inserted into the sac, and brought into a vertical position, a slight rotation of it on its long axis makes the lower point, which is in search of the orifice of the duct, describe a small circle; and by slightly varying the inclination of the probe and making gentle pressure at the same time, with slight rotation, the point never fails to enter the duct. The right and left probes have opposite curves, to suit the inclination of the duct.

The probe is known to have entered the nostril by the depth to which it has entered compared with the external position of the nostril, and also by its coming in contact with the floor of the nose. It is allowed to remain there for a few minutes, or is immediately withdrawn, according to circumstances.

In any ordinary case of chronic inflammation of the sac, the cure is regarded as well begun, and often half accomplished, as soon as a full-sized probe has thus passed into the nose through the whole course of the natural channels. To repeat the probing is a very simple process, the enlarged punctum being always ready to admit it, and the proceeding being usually more easy each time it is practised. The probing is repeated every day, every other day, every three or four days, or every week, according to the progress of the cure and accidental circumstances. It usually becomes at once easy for the patient to press mucus or pus from the sac, as it is secreted, both by the canaliculus and nasal duct; he is enjoined to do this very frequently, and hot fomentations are used if required. It is common to find in a few days that no more pus is formed, and in a few weeks that mucus ceases to accumulate. In many cases the relief to the epiphora is immediate, and the patients are made at once much more comfortable, losing all that distress that has been occasioned by the distension of the cavity of the sac, and the congestion of its lining membrane.

Rather more than a year ago Mr. Bowman contrived a mode of inserting a style by the canaliculus, and leaving it for a certain time in the passages, in order to open them on the principle of the old style. The style was made to taper rather suddenly at one end, and it was bent at about a right angle, so that the thick part should be placed vertically in the sac and nasal duct, and the thin part horizontally in the canal. The length of the thick part was adapted in each case by the surgeon, so as to extend from the point at which the canal enters the sac downwards as far as the floor of the nostril, on which it rested, being thereby prevented from falling too low and burying itself out of sight. The proper length was ascertained previously by measurement by a probe. The horizontal part was, in like manner, adapted to reach to a point of the canal midway between the caruncle and the punctum, and a bend was given to it, making it lie exactly within the canal, concealed from view in the channel formed by the slitting up of that passage. The material was silver, and the ends, after being cut to the requisite length, were carefully rounded, and the thin one tipped with sealing wax.

These *bent styles*, when suitably adjusted, Mr. Bowman found could be generally worn with very little inconvenience for a few days, and admitted of being readily removed and reinserted, and he still employs them when the stricture is dense and obstinate, or when a rapid opening of it is required. But they sometimes occasion trouble, and become a source of irritation, and they may even produce ulceration of a portion of the canal if badly fitted, or if left in too long, as, for example, when the patient has absented himself during the treatment.

Mr. Bowman therefore prefers to treat the obstructions in almost all cases by the intermittent use of the probe, as already described, and especially as the

results by that method are so satisfactory. He does not recommend the bent styles for general adoption.

In speaking of the rapid relief or cure of cases thus treated, such general and local means as are familiar to all are not neglected. They are useful as aids, but without the surgical interference would be unavailing. Nor is it represented that all cases get well at the same rapid rate, or that relapses never occur. Unfortunately these cases of obstructed ducts generally occur in subjects more or less debilitated, scrofulous, or otherwise unhealthy, and there may be complications of disease of neighboring parts or of the Schneiderian membrane. But all these inconveniences belong to the old method even more than to this, the advantage of which is that it effects the opening of the passages in the most simple way conceivable, and with the least possible interference with the natural structures. It, therefore, seems preferable, not merely in itself, but also inasmuch as it is able to be employed in the required degree and extent, and in that only, at a period of the disease however early, and under all contingencies of relapse; and therefore, if generally adopted, it may be expected to alleviate the severity and diminish the number of these distressing affections, which have been hitherto hardly less troublesome to the surgeon than to the patient.

Mr. Bowman also states that there are cases of an aggravated nature, which have passed beyond the stage at which the above simple treatment is available—where abscess has formed, where the sac is enormously dilated and thickened, where bone is diseased, where styles have been previously worn, and fistulous orifices exist. The hope is, that such cases will gradually now become less frequent.

In a postscript to this paper, contained in the second number of the "Ophthalmic Hospital Reports," Mr. Bowman adds:—

"To facilitate the slitting up of the punctum, a minute director may be substituted with advantage for the No. 1 probe as described in the previous paper. It has been made by Mr. Weiss, at the suggestion of Mr. Critchett, and consists of steel coated with gold by the electrotyping process. It is sufficiently thick in the stem to give it firmness, and one end is reduced to a very fine size, and grooved to within a line of the extremity, which is of the size of a No. 1 probe. It is used in the same way.

"I may take this opportunity of saying once again how cautious it is necessary to be in the manipulations of the canaliculi, particularly when they are the seat of stricture, and how desirable to proceed gradually from one step to another, not neglecting subsidiary points of treatment. I may also state that when one canaliculus is strictured and the other open, I prefer to proceed with the treatment of the sac and nasal duct through the open canaliculus, leaving the other alone; for a stricture of one canaliculus is often of itself insufficient to occasion any epiphora, and if the sac-inflammation and the stricture of the nasal duct can be cured by probes conveyed through the open canaliculus, the patient is relieved effectually, even should the other remain strictured, which it often does not. In such instances, however, I always slit up both puncta."

Case of Aneurism of the Arteria Innominata treated by Pressure on the Distal Side. By Mr. EDWARDS, Demonstrator of Anatomy in the University of Edinburgh.

The mode of treatment which was employed successfully in the following case, does not appear to have been tried on any previous occasions.

CASE.—In September, 1856, Mrs. L—, æt. 50, was recommended to my care by Professor Simpson. She was a sallow-complexioned woman, with hanging, flabby cheeks; her lips, which were always apart, were livid and drawn down at the angles, and she breathed rapidly. Her countenance presented the peculiar anxious expression of one suffering from a fatal disease. On examining her neck, I found on the right side, above the sterno-clavicular articulation, a tumor, the size of an apple, situated between the sterno-mastoid muscle and the middle line of the neck, which pulsated violently, was soft and compressible, giving to the fingers much the same feeling as a vulcanized India-rubber ball,

which, though easily compressible, expands again immediately the pressure is withdrawn; and with the expansion of this tumor, fluid seemed rapidly to fill the interior, and to be separated but by a thin partition from the fingers. Another pulsating tumor rose in front of the trachea. They were, though apparently distinct, evidently bulgings out of the same aneurism, as pressure on the one was followed by increase in size of the other. The patient had remarked these tumors about two months before I saw her, and they were, according to her account, increasing rapidly. Any pressure upon them was attended with pain and an increase of cough. She suffered from constant dyspnoea, had entirely given up her ordinary household occupations, and had frequent fainting fits; she rarely ventured even at night to lie down in bed, as, after falling asleep, the laryngeal spasm became so violent that an attendant had to be on the watch ready to administer restoratives. The ordinary internal remedies were tried, but without much benefit.

As I considered that the aneurism was one of the innominate artery, I thought of placing ligatures on the vessels, according to Wardrop's method; but Dr. Laycock, who at my request examined her chest with the stethoscope, considered that the arch of the aorta was also aneurismal, so I gave up the idea of a cutting operation. But it struck me that Mr. Wardrop's principles could be applied to compression, and Mr. Young, of Prince's Street, constructed for me an instrument which I shall endeavor to describe.

A broad leathern belt to go round the chest, and fasten in front with three straps and buckles. On its left posterior and right anterior upper margins are brass buttons. In the middle of its posterior aspect is an iron plate perforated with several holes to admit screws, which attach to it an upright steel rod about eighteen inches long. This rod supports an arc of steel, which is attached to it by a screw allowing a certain amount of motion. In front, this arc is perforated by another screw, about an inch long, with a small cross handle; this projects backwards, and bears a conical piece of cork covered with wash leather. When the instrument is applied, the upright is at the back and right side of the neck, which rests in the arc, and, by shifting the lower end of the upright, pressure with the cork can be regulated and efficiently maintained upon the common carotid artery, the conical shape of the cork enabling one to confine the pressure to the artery. A strap is carried over the right shoulder from the buttons behind to those in front; on it slides another cone of cork, which can be adjusted over the subclavian. It will be seen that in principle this instrument resembles Bourguery's tourniquet for subclavian pressure.

Mrs. L.— had worn this instrument for several hours of two days, when I was alarmed by observing that the tumor had visibly increased in size. Its walls felt thinner, and the contents were distinctly fluid. The *bruit de soufflet* was very loud, and the pulsation violent. The treatment, however, was continued, and the pads adjusted so as to stop all pulsation in the branches of the external carotid and in the right wrist. On the fourth day the tumor, though larger than when the instrument was first applied, was much harder and less compressible. The tracheal portion still, however, pulsated violently. Every morning, for the first two weeks, I adjusted the apparatus, at the same time manipulating the tumor rather roughly, with the view of breaking up the fibrine in the sac. But she soon learned how to apply it for herself, and, finding decided benefit from it, bore the treatment cheerfully. She said it was irksome, but never complained of pain.

After the first week the laryngeal symptoms entirely disappeared, and did not return, and she had no more fainting fits; but she complained of some impediment in swallowing, as if some hard body stopped the food in its passage down the gullet. I now feared that the apparent improvement was deceptive, and that the tumor was increasing towards the œsophagus; but as this symptom disappeared with the gradual decrease in the bulk of that part of the aneurism which we could judge of by external examination, I now conclude that it arose from the solidification of the contents of the sac in close apposition to the gullet.

By the end of three months she was well enough to lay aside the instrument and resume her former household duties. She repeatedly walked a distance of

three miles and back to my house, and passed tranquil nights. The external part of the tumor was then, and is now, the size of a nut, and hard; the tracheal portion has entirely disappeared; the aortic aneurism seems to have made but little progress, and, with the exception of attacks of neuralgia in the face and head, and a chronic cough which troubles her every winter, she has been in good health since. She gave up the instrument more than ten months ago. Before she began to use it, a surgeon of great experience told me he expected the external tumor would burst in a day or two, and Dr. Laycock was of the same opinion. Of course, I cannot hope to avert the fatal termination we must always expect in thoracic aneurisms; but I am convinced, and so is the patient, that the compression of the vessels beyond the aneurism was attended with marked benefit, and was the direct cause of its hardening and subsequent rapid decrease in its size.

The Enlarged Prostate, its Pathology and Treatment; with Observations on the Relation of this Complaint to Stone in the Bladder. By HENRY THOMPSON, F. R. C. S., M. B., Assistant Surgeon to University College Hospital, Consulting Surgeon to the St. Marylebone Infirmary, &c.

This work is of a thoroughly sound and practical character. It contains a large amount of new matter and original thought, and it fairly and fully states what had been done by previous investigators in the same subject. It is a work, indeed, with which few readers can be dissatisfied.

The anatomy of the prostate, and the anatomical characters of the enlarged organ, form the subjects of the first two chapters; and here we find the result of not less than seventy original dissections and a careful examination of the dissections contained in the different metropolitan museums. What these results are may be seen by turning to the abstract of a previous paper which will be found in a former volume (xxv. p. 153), and here we will only say that the two points upon which most stress is laid are—first, that the "third" or "middle lobe" is a diseased and not a natural portion of the prostate; and, secondly, that there is an analogy between enlargement and tumors of the prostate and those of the uterus.

The alleged causes of senile enlargement of the prostate are treated of in the third chapter, and here, after stating the views generally entertained on the subject, enlargement of the prostate and uterus are shown to be identical in their nature, and probably in their causes.

"There is but one other organ in the body which is similarly constituted, as regards the nature of the constituent tissue, and in the manner of its aggregation. The uterus, like the prostate, is composed of the inorganic muscular tissue distributed in thick strata, so as in either case to form a thick mass, not in thin planes, as found in all the other organs in which this tissue appears. The tendency to become the seat of local and general hypertrophy, of isolated tumors and outgrowths of a special character, which both organs equally manifest, has also been demonstrated. Starting from this remarkable fact, it is difficult to resist the inference that this tendency to overgrowth, this disposition to generate fresh elements identical in character with those proper to the structure of the organs, has a source common to both, and perhaps inherent as a kind of structural, or perhaps functional necessity. The capability of this structure for exhibiting rapid and enormous increase under certain circumstances, is admirably exemplified by what happens to the gravid uterus. A dormant force is awakened through the presence of the impregnated ovum, and the weight and bulk of the organ is in a few months increased tenfold. Active determination of blood is coincident, and doubtless supplying the materials of nutrition, but not venous congestion, nor any one of the numerous alleged causes of prostatic hypertrophy already referred to. But the uterine function having ceased temporarily or permanently, the organ diminishes and returns sooner or later nearly to its original size. During the latter moiety of the term of reproductive activity, the uterus is exceedingly prone to develop formations, identical in structure with its own, but more or less isolated from the parent tissues, either in the form of tumors or outgrowths, and these are

associated with general development of the normal parts of the organ. These phenomena are observed, perhaps, with greater frequency in the virgin than in the impregnated female, showing that they do not depend on any force called into play by pregnancy, but on one irrespective of it, and possibly inherent in the structure of the organ, or associated intimately with some function peculiar to it.

"It is an interesting circumstance that the prostate, male homologue of the uterus, should exhibit analogies in many points of view with the latter organ in regard of its tendency to overgrowth. The most obvious explanation, and the conclusion which, after a careful examination of the subject, is that which appears to me better supported than any other, seems to be offered in the simple fact now completely established, that the structure in both is exceedingly prone to develop, among its component elements, minute, independent, or isolated formations, possessing an organization identical with itself; which formations in the majority of cases do not increase beyond a certain very limited size, and do not interfere with the performance of any known function in either sex, but which, in exceptional instances, continue to be developed, for the most part only, during a certain limited period of life, say, in general terms, between thirty-five and fifty in the female, and between fifty and seventy in the male; in the one case appearing in the form of uterine hypertrophy or tumor, in the other in that of prostatic hypertrophy or tumor. Whether the formation of these products is anything more than a contingency of structure—that is, whether it be connected with any functional action common to the structure in both cases, is more doubtful.

"Anatomical examination of the enlarged organs, prostate and uterus, demonstrates the arteries and veins to be both enlarged, the latter, probably, as a result of the former. An increased supply of arterial blood is coincident with the increasing size of the organ; but whether the vascular determination precedes or closely follows the commencing development it would not be easy to affirm.

"Are there any circumstances in the mode of life, or of pre-existing disease, which we are warranted by reasonable evidence in considering causes of prostatic hypertrophy? I know of none. The fact that almost all known causes of diseases in general have been alleged to be so of this one in particular—what is it in reality but a tacit expression of the same opinion? Every diathesis—gouty, rheumatic, tubercular, syphilitic, has been arraigned as the offending cause. Every form of local excitement possible to the pelvic viscera has been similarly held accountable. Thus it follows that the bearing of any single circumstance becomes neutralized in the concourse of numbers. Every proposition finds its refutation in the presence of some other one among the multitude.

"The origin of hypertrophy being thus attributed to a necessity of structure, no doubt all circumstances which tend to induce active determination of blood to the locality may aid in its development. Thus we find emotional excitement of a sexual kind, and actual excesses, overstimulating food, sedentary habits, horse exercise, and many other conditions having a like tendency, enumerated among the causes of this affection. But the initial step in the causation of hypertrophy is, I believe, independent of, and probably uninfluenced by, any of these circumstances, although they doubtless tend to increase already-existing disease. And thus it is that much may be done by judicious treatment, by well-directed management, to retard the progress of enlargement, that disposition being exceptional to the majority of cases, even where the seeds of overgrowth exist, as in the form of minute tumors or commencing outgrowth. All that tends to diminish the local supply of arterial blood, to the organ may be held to favor the condition of *statu quo*, or slow increase. This, however, is not the place to enter further on the subject of treatment; the allusion made is sufficient to illustrate the question under consideration."

The symptoms of enlarged prostate, the effects of enlarged prostate in relation to the function of micturition, the diagnosis of prostatic and other obstructions at the neck of the bladder, the treatment of senile enlargement,

the treatment of retention of urine from enlarged prostate, enlargement of the prostate from inflammation, malignant disease of the organ, tubercular disease and cysts, the bar at the neck of the bladder, prostate concretions and calculi, form the subjects of successive chapters. There is much valuable matter under each of these heads, but we would especially instance the remarks upon the effect of enlarged prostate upon micturition, upon malignant and tubercular disease, and upon diagnosis and treatment. The last two subjects, indeed, are in every respect deserving of attention.

The last chapter is devoted to a careful consideration of that important, but not uncommon complication of enlarged prostate, stone in the bladder, and especially of the best modes of successfully applying lithotripsy as a means for its removal.

III.

REPORT ON THE PROGRESS OF MIDWIFERY AND THE DISEASES OF WOMEN AND CHILDREN.

A Manual of Obstetrics, Theoretical and Practical. By W. TYLER SMITH, M. D. (London: Churchill, 1858.)

MR. CHURCHILL has added to his admirable series of manuals, one on obstetrics. Dr. Tyler Smith is the author of this manual, and in it he gives an excellent digest of the anatomy and physiology of the reproductive organs, and of the theory and practice of obstetric medicine and surgery. The work will prove a very welcome addition to the library of the general practitioner, and it will no doubt become a great favorite with students. The whole of the subjects entering into a treatise on obstetrics are discussed with great clearness, and notwithstanding the brevity which is necessary to the construction of a manual, the work is not only very readable, but the most important of the debated questions, both in the physiology and pathology of the reproductive organs, as well as in practical obstetrics, are so well set forth that the "Manual" is calculated to prove a valuable guide to those students and practitioners who may desire to become independent observers, and to record for scientific and practical purposes the results of their obstetrical experience. Not the least interesting portion of the work is that in which Dr. Smith sums up his views on the nervi-motor functions of the uterus.

As an illustration of Dr. Smith's style, and as a valuable summary of a debated but very important question in obstetric practice, we quote, in the main, Dr. Smith's remarks on the partial or entire separation and extraction of the placenta in cases of placental presentation.

After treating of the use of the plug, or tampon, puncturing the membranes, and turning the child in these cases, Dr. Smith proceeds:—

"I have now to refer to the artificial extraction of the placenta before the birth of the child, which has certainly been one of the most prominent points in obstetric practice during the last ten or twelve years. It is one, the settlement of which is of great interest, as nothing can be more unsafe than halting between two opinions upon such a subject. From an early period it had been remarked by accoucheurs that cases of unavoidable hemorrhage were occasionally met with, in which the placenta was expelled spontaneously before the birth of the child, and that others occurred in which the hemorrhage was arrested by the spontaneous separation of the placenta. The first person who seemed to have pointed out the deduction of a rule of practice from such cases was Mr. Chapman, of Amptill. The placenta was also removed in some cases of placenta prævia by Mr. Kinder Wood, of Manchester, and subsequently by Mr. Radford. Probably cases have always occurred in which accoucheurs, finding the placenta loose in the vagina, or almost entirely detached, have removed it. Dr. Simpson took up this subject in 1844, and with his usual ability and force, pointed out what he considers the advantages of this operation, the principles upon which it is founded, and the cases in which it is applicable. The tenor of Dr. Simpson's earlier writings was such as to lead to the belief that he wished to supersede, in great measure, the operation of turning, by the separation and extraction of the placenta. This impression has continued to a great extent up to the present time, and it is upon this impression chiefly that its opponents have attacked and denounced the opera-

tion. In one of his latest publications on the subject, in 'The Lancet,' 1847, vol. i., he has corrected this, and insists upon the limitation of the extraction of the placenta to cases 'where the other recognized modes of management were insufficient or unsafe, or altogether impossible of application,' or where the old methods of practice 'were attended by extreme hazard or extreme difficulty.' Dr. Simpson combined with his advocacy of this practice an exposition of his views as to the source of the hemorrhage in placenta prævia, which met with great opposition. Dr. Hamilton and others advocated the doctrine that the hemorrhage in placenta prævia 'proceeds from the separated portion of the placenta more than from the ruptured uterine vessels.' Dr. Simpson endorsed this view to the full extent, and I suspected it is this, as much as the rule of practice itself, which has excited the opposition which has been manifested. According to this hypothesis, the blood lost in separation of the placenta flows from the placental cells, the supply to these cells being kept up by vessels supplying the undetached portions of the placenta. It is supposed that, as the separation proceeds, the veins from the uterine surface, from which the placenta is detached are closed so as to prevent any retrogressive hemorrhage from the uterus."

Dr. Smith believes this theory to be altogether untenable, for there are no proofs of the escape of the great quantities of blood lost in these cases, from the placental surface; and although there is an unobstructed channel for the flow of blood from the curling arteries, through the placental cells, and the openings found upon the placental surface when this has been separated from the uterus, yet there are valid reasons why we should believe that the sudden and great gushes of blood poured out in placenta prævia do not escape in this way. The uterine arteries are of comparatively small calibre, and the openings upon the placental surface are neither large nor numerous. Supposing one half of the placenta to be detached, it is highly improbable that the profuse loss frequently met with in these cases could come from the uterine arteries entering the undetached portion of the placenta, even if they were all discharging blood simultaneously. Moreover, there are good reasons for believing that the uterine veins are the real sources of hemorrhage in placenta prævia. The size of the venous openings, the valveless state of the uterine veins, the channels being unimpeded from the right auricle to the open mouths of the sinuses, furnish anatomical arguments in favor of this source for the flow of blood, which are stronger than those derived from the anatomical arrangement of the uterine curling arteries and the placental sinuses, in favor of the opposite view. Then there are the facts connected with post-partum hemorrhages. The only hemorrhages comparable for suddenness and extent to the losses in placenta prævia are those which occur after labor, and subsequent to the expulsion of the placenta, in cases where it has been attached to the fundus uteri. In inversion of the uterus, after completion of delivery and the separation of the placenta, the flooding is known to be enormous. Here, then, can be no question but that the hemorrhage takes place from the open mouths of the uterine veins. For these and other reasons, detailed in the book, Dr. Smith infers that "in the hemorrhage from the placenta prævia the blood escapes in great part from the uterine surface, and not from the maternal surface of the placenta." Doubtless some blood exudes from the surface of the placenta in cases of partial separation, whether the placenta be attached to the fundus or cervix, but he contends "that this is not the chief source of flooding in placenta prævia."

"While I thus take exception to Dr. Simpson's theory of the nature of hemorrhage in placenta prævia," continues Dr. Smith, "I do not question the correctness of the fact upon which he lays so much stress, namely, the frequent and indeed common arrest of the hemorrhage on the entire detachment of the placenta. Dr. Simpson's theory does not appear to me to be necessary to the explanation of this matter. In my work 'On Parturition,' I pointed out that the separation of the placenta furnishes a source of irritation which excites the uterus generally, and the muscular structure at the site of the placenta especially, to contraction, and that in this way hemorrhage was prevented. This is probably the reason why, in twins with separate placentas, there is frequently

no hemorrhage between the expulsion of the first placenta and the birth of the second child. It is reasonable to suppose that the same thing occurs in placenta prævia, after the separation and extraction of the placenta, in the intervals which occur between the pains. The tendency to hemorrhage from dilatation of the orifices of the veins during the pains is corrected by the descent of the head or presenting part, and the mechanical compression of the uterine walls.

"Dr. Simpson unequivocally demonstrates that in a great number of cases recorded by various authors, both before and since the publication of his views, the placenta has been detached and the hemorrhage arrested. There can, indeed, be no question upon this point. Those most opposed to Dr. Simpson—Dr. Robert Lee, for instance—record cases in which the hemorrhage has ceased after the spontaneous expulsion of the placenta. The cases in which, in his most recent writings, Dr. Simpson would advise separation and extraction, are those in which the evacuation of the liquor amnii is of no avail, and when the state of the patient is such as to call for interference; but where turning or other measures of delivery are impracticable, from rigidity, or non-development of the os and cervix uteri, or a high degree of distortion of the pelvis. He would also employ it in the case of dead, premature, or non-viable children, particularly when the uterus has contracted, or is so imperfectly developed as not to admit of turning. It is questionable if rigidity can be a valid plea for this operation, except in very rare cases. When the os uteri is sufficiently open to allow of the admission of the fingers for the purpose of separating the entire placenta, there will generally be room enough for the admission of the hand. I believe the separation and extraction of the entire placenta to be suitable for those cases in which it is attached all round the os uteri, and in which the exhaustion is so great as to render some more rapid attempt at assistance than the operation of turning imperative. In some of these cases the patients would be killed by turning, if the hemorrhage were going on simultaneously with the operation.

"The extraction of the placenta offers a means of arresting hemorrhage, and after a short rest the patient may be sufficiently rallied to bear turning; for it must be remembered that in many of the cases in which the placenta has been extracted artificially, turning has been necessary to complete the delivery. In all cases where the child is alive and viable, delivery should be effected by turning or the forceps, as soon as possible after the extraction of the placenta, if the state of the patient is such as to bear the operation. Extraction may be sometimes useful in cases where turning is impossible, as in cases of contraction of the uterus, or great pelvic deformity, when the removal of the placenta may arrest hemorrhage and facilitate the operations of turning, craniotomy, or evisceration. It may also be practised in some cases of dead or premature children, when the hemorrhage is going on, and turning is difficult from any cause. When the flooding is not profuse, and when the uterus is roomy and the waters undischarged, the extraction of the placenta before the child offers no advantage whatever. The whole subject has been ably treated by Dr. Chowne, and Dr. Fleetwood Churchill gives a very candid exposition of the advantages and disadvantages of the operation."

Certain statistical arguments have been advanced in favor of the operation.

"By the ordinary methods of practice, rather more than half the children are lost; and Dr. Simpson attempts to show that the mortality is scarcely more than this when the placenta was extracted before the child. He gives a table of 141 cases; of these, the child was saved in 33 cases; in 99 cases it was born dead; in 1 the child was anencephalous, and died shortly after its birth; in 28 cases the result, as regards the child, was not stated. But such a state of mortality cannot be hoped for from artificial extraction. In many of the cases of spontaneous expulsion the fetus, membranes, and placenta, are expelled by the same pain. Dr. Simpson, as Dr. Fleetwood Churchill observes, has only recorded one case of the child being born alive when the interval after the removal of the placenta was more than ten minutes. Dr. West collected 17 cases, but in 16 of them the children were lost. If this great proportion of foetal mor-

tality should be preserved, it must go far to prevent the adoption of extraction in any but the most unpromising cases.

"Dr. Barnes has entered more fully than any previous author into the subject of placenta prævia and its treatment. He believes that in placenta centralis the action of the pains detaches the placenta in concentric rings from below upwards, until the separation is carried sufficiently high to admit of the passage of the foetal head. This point being reached, he contends that the hemorrhage ceases, although a sufficient amount of placenta may remain attached to allow of the preservation of the child. In placenta lateralis, also, cases are met with in which no interference takes place, but in which the placenta is detached from the os uteri and from the internal surface of the uterus to a certain extent, after which there is no further hemorrhage. Thus there is a zone or line round the lower part of the uterine cavity, above which the placenta is tolerably safe against detachment during delivery, and below which separation with hemorrhage are inevitable. Dr. Barnes founds upon these data the principle of practice for which he contends—namely, the artificial separation of the placenta, when the os is sufficiently open, to such a distance above the os uteri as to admit of the passage of the foetal head, and thus to save the patient from the intermittent separation and hemorrhage produced by the pains. He would affect at once, by passing one or two fingers into the uterus, rupturing the membranes, and sweeping them round the os and cervix, what nature only does slowly and dangerously, believing that the natural contractions of the uterine tissue will prevent any dangerous effusion of blood after this operation, or that, if uterine action be wanting, it may be compensated for by internal and external stimuli, plugging the vagina, the administration of ergot, astringent injections, or the use of electricity. When the detachment of the placenta has been completed to the extent pointed out, Dr. Barnes would, as I understand him, leave the case to nature, unless special reasons for other interference should exist. Dr. Cohen, of Hamburg, has proposed, in cases of partial or lateral placenta prævia, to detach entirely the placenta from that half of the cervix to which the smaller portion of its bulk is attached, when, as he states, the placenta passes over during the pains to the side of its chief attachment, and the hemorrhage ceases. Dr. Cohen mentions that he has, in many instances, performed this operation with invariable success as regards the mother, and that he has rarely lost a child. This method is evidently an ingenious modification of that proposed by Dr. Barnes. As regards the use of astringents, Dr. Barnes recommends the sesquichloride of iron, or a pared lemon, but I would suggest the use of alum and iron as a most powerful astringent. In the application of pressure, an inflated air pessary of sufficient size would be more effective than any other kind of plugging. As a summary of the whole of this important subject, it may be stated that—

"In turning we have the great advantage of controlling the duration of labor, and in the performance of the operation the hand and arm of the accoucheur, and subsequently the part of the child brought down, plug the cervix uteri very efficiently. I believe also that except in cases of limited attachment of the placenta at the os uteri, the chances of saving the child is as great as by any other method. The risk to the mother from the operation, unless in extreme cases, is very slight. Turning cannot, however, be practised until the os uteri is dilated to a certain extent, up to which time plugging must be depended upon if we determine to turn. Cases are also sometimes met with in which the exhaustion of the patient is so extreme as to forbid the operation.

"In separation and extraction of the placenta we have the means of arresting the flooding when the mother is too weak to admit of turning. Hemorrhage does not, however, invariably cease on the extraction of the placenta, and by this procedure the life of the child is almost certainly sacrificed. The best cases for its performance are those in which dangerous exhaustion exists, or when the child is already dead.

"In partial detachment of the placenta there is a fair chance of saving both mother and child in favorable cases. But although I give its full value to the principle enunciated by Dr. Barnes, it must in practice be difficult to know, in individual cases, at what point of detachment the hemorrhage is certain to

cease altogether, it being the great feature of hemorrhage in placenta prævia that it suddenly ceases and as suddenly recurs. I should myself prefer to combine turning with the mode of practice advocated by Dr. Barnes."

A Treatise on the Employment of the Speculum in the Diagnosis and Treatment of Uterine Diseases, with 300 cases. By ROBERT LEE, M. D., F. R. S. Obstetric Physician to St. George's Hospital, &c. (London: Churchill, 8vo. pp. 132, 1857.)

This book is a reprint of a paper which was presented to the Royal Medical and Chirurgical Society, and which was noticed in our pages at the time of its appearance. It is issued "with the hope that it may contribute in some degree to the correction of these erroneous and pernicious doctrines respecting the diseases of the uterus which have recently been introduced into England from foreign countries; and, if possible, to curb the licentious use of the speculum." A proper title would have been *Anti-Speculum*; or, a *Treatise against the use of the Speculum*.

Illustrations of the Reciprocal Sympathies between the Uterus and Bladder. By W. F. MONTGOMERY, M. D., late Professor of Midwifery in the School of Physic in Ireland. ("Dublin Hospital Gazette," Dec. 1, 1857.)

"It is familiar to us all," says Dr. Montgomery in a paper read before the Medical Associates of the College of Physicians in Ireland, November 4th, 1857, "that in the human female there is an intimate reciprocal sympathy between the uterus and bladder, and other parts of the urinary apparatus; so that, under a variety of circumstances, when the former organ is the seat of any anomalous action, or brought into a state of exalted sensibility, whether from natural or morbid causes, the latter is not only liable, but very apt to sympathize, and suffer correspondingly.

"This is constantly exemplified in the increased urinary irritation so often accompanying ordinary healthy menstruation, and still more remarkably, when the latter function happens to be painfully performed. Again, in early pregnancy, the same thing is observed; and the remark is trite, that morbid actions in the uterus, whether benign or otherwise, often have the earliest announcement of their invasion, in symptoms of disturbance first noticed in the functions of the bladder.

"Thus, congestion or slight ulceration of the cervix uteri, and still more strikingly, malignant affections of that part, frequently excite, in the first instance, in the patient's mind, only apprehensions of gravel, or some vesical disease, for which alone she is induced to seek advice; but woe betide us, in this and many other circumstances, if we let ourselves be beguiled into the belief that because a particular organ or locality is affected with certain anomalous symptoms, it is therefore the seat of some disease, of which these symptoms are to be taken as indications; and so prescribe. Could we, for instance, expect to cure the itching of the nose and angle of the eye which accompanies the presence of intestinal worms, by applications to the Schneiderian or conjunctival membrane.

"Mrs. C— had for a long time, intense, intolerable, distracting itching of the perineum and anus, which really rendered her life miserable, and for which she had consulted many, and used a multiplicity of remedies; many of them, no doubt, very appropriate for *pruritus*, but *not for her*. When she came under my care, I also, at first, adopted the wrong course; I prescribed *for the symptom*, and *not for its cause*. But, fortunately, after seeing her a few times, something led me to suspect the existence of intestinal worms. I gave her a dose of the kousso, which caused the expulsion of some very large lumbrici, and all her troubles were forthwith at an end.

"Mrs. M— consulted me for *pruritus* of the pudendum, from which she suffered to such a degree, and it was accompanied with other symptoms of so distressing a kind, that she declared she loathed herself, and felt her life an intolerable burthen to her. She had used gallons of lotions, and all sorts of

ointments, without the slightest relief. Examination showed an intense congestion of the cervix uteri; this was made the object of treatment, and on its removal, the pruritus and all its miserable concomitants totally ceased.

"I have already called the consent between the uterus and bladder, a reciprocal sympathy, because it equally acts in the reverse direction, irritations of the bladder being frequently found to influence and disturb the functions of the uterus—a fact which should not be forgotten in practice, and especially in the treatment of the diseases of pregnancy, when the administration of the more irritating diuretics should be avoided, lest they should excite contraction of the fibres of the uterus, and so induce premature expulsion of its contents. That they are capable of so doing is, unfortunately, popularly known, and advantage is taken of such knowledge for base and wicked purposes.

"And again, we must remember that vesical disturbances may produce a group of symptoms so closely resembling those arising from disease of the uterus, as to be mistaken for them.

"Several years ago, there occurred in this city, a case forcibly illustrative of this, and which excited no small sensation. The wife of a general officer, at that time holding the highest military command in this country, began to complain of distressing symptoms, having all the characters of those produced by uterine disease. Such was her own conviction, and on her consulting an accoucheur, then in large and high practice, her worst fears were confirmed; he pronounced the affection to be cancer uteri, and could only promise palliation. But she had many anxious friends, whose happy privilege it is always to hope for the best, and some of them urged upon her the necessity of having another opinion; to this, she at last consented, and the gentleman called in, pronounced the case to be one of stone in the bladder; the stone was extracted, and the lady passed at once from a state of pain and misery, to one of comfort and happiness.

"A few years since, a patient came to consult me, stating that, to gratify her friends, she had come to town for my advice, although quite aware that she could not be cured. She also handed me a written statement of her case, which set forth that she had had seven labors of terrible severity, owing to contracted pelvis, always requiring instrumental delivery; that for some months she had exhibited unequivocal symptoms of the existence of cancer uteri; and I confess, that from this account, and the woman's own description of her symptoms, I thought there was little room for doubt as to the nature of her malady. However, I, of course, gave no opinion, and suspended my judgment until I should have instituted a careful examination; on doing so, I could discover no disease of the uterus, but the neck of the bladder was distended, and felt very hard. I passed a sound into it, which at once struck against a stone of considerable size. Mr. Fleming now saw the case with me, the stone was removed, and the woman soon returned home well, and continued so.

"It is not my intention to enter into a lengthened exposition of all the details of this part of our subject, but only to ask the attention of this distinguished meeting for a few minutes, while I review as briefly as may be, some forms of disturbance of the functions of the bladder occurring at the time of labor. And I may just premise, that considering the frequency with which we witness such interchange of sympathies as we have been hitherto discussing, and their production, in many instances, from comparatively unimportant causes, we would anticipate from the close relation of juxtaposition between the uterus and bladder, and from the direct exposure of the latter organ to the powerful mechanical efforts of the uterus, as well as from the marvellous anatomical and physiological changes taking place in the latter, during pregnancy and parturition, and immediately after—we would, I say, be led to expect that the innervation and the powers of the bladder would be likely to exhibit still more marked and decided evidences of impairment, or some other abnormal condition, in the puerperal woman; and accordingly, in practice, we find that there are, at least, four forms of disturbance of the functions of the bladder, which are not unfrequently produced by parturition, even when that process is easy and natural.

"1st. Irritability, causing an inconveniently frequent desire to discharge its contents; and this with a certain amount of pain.

"2d. Loss of expulsive power; the natural sensibility being unaffected.

"3d. Total loss of the natural sensibility, or irritability, which prompts to the evacuation of the contents of the organ.

"4th. A peculiar form of hysterical retention.

"The first two of these states require little more than to be glanced at; the third and fourth demand a somewhat more particular consideration.

"1st. The irritability of the bladder which succeeds labor, almost always, yields readily to soothing measures, such as warm anodyne fomentations, a linseed-meal poultice, opiate and camphorated embrocations, an opiate suppository in the rectum, or the administration of the mist. camphoræ c. magnesia, with tincture of hyoscyamus and syrup of poppy. Should there be reason for suspecting inflammation, it may be necessary to apply a few leeches, and use other appropriate remedies; but this is rarely the case.

"2d. When the expulsive power is in abeyance, but the natural sensitive irritability remains unimpaired, the desire to evacuate the contents of the organ becomes distressingly urgent, in proportion to the amount of accumulation within it.

"This condition is sometimes produced by pressure from the uterus happening to be larger or lower than usual, perhaps displaced, or from the presence of an uterine tumor, in which case, raising up the obstacle may remove all difficulty. Sometimes, merely permitting the patient to assume the sitting position may suffice. Should these plans not succeed, the introduction of the catheter gives the desired relief.

"3d. Again, there is the third and most important variety, in which there is no irritability, not even the natural desire to evacuate the urine, nor sensation, nor consciousness of requiring to do so, although a large accumulation is taking place, which will soon produce symptoms, not alone very distressing in themselves, but, what is worse, conditions which may lead us greatly astray, and excite groundless apprehensions of great impending danger; and it will not lighten our discomfort, should it turn out, as has often happened, that the patient owes all her annoyance to our inadvertence, or to the carelessness of the nursetender; for if we are careful in making the requisite inquiries, and give the proper directions to the nurse, and she attend to them, the accident, of which I am about to speak, *could not happen*.

"The first time I remember to have had my attention drawn to this condition was in the year 1832, and in the case of an esteemed medical friend's wife, who was delivered of her first child, after a natural labor of fifteen hours, presenting nothing unusual, if we except the most tremendous rigor I ever witnessed, which occurred shortly after delivery, and was so violent that I really thought it must have ended in convulsions; but simple means removed it, and she went on well. Before leaving her, I cautioned the nurse to encourage the lady to pass water in the course of the evening, as she had not done so for several hours; this, however, was neglected, as the lady neither expressed, nor felt any want; and, at my next visit, I found my patient very feverish, with headache; a pulse above 120; the belly tumid and tender to the touch. Before proceeding to introduce the catheter, of which she had a great horror, I advised her trying to pass water, which she did, to the amount of at least two quarts, with instant relief to all the symptoms. Her convalescence was uninterrupted.

"At a time when there were occurring several cases of puerperal fever through town, a medical friend called on me to request that I would accompany him to visit a patient of his, who had been confined two days previously, after a severe and protracted labor. She was not going on well, and he thought he had to deal with a case of the above mentioned formidable disease, as his patient was very feverish, had most distressing headache, a rapid pulse, with abdominal pain, swelling, and tenderness. On seeing her, I thought the presence of a large quantity of fluid was beyond doubt; a catheter was introduced, and an enormous accumulation of urine withdrawn, with immediate and decided relief to all the symptoms. It was then ascertained that she had not

passed water since her confinement, nor for many hours before it; she recovered perfectly.

"The next case occurred to me under circumstances which invested it with a very unusual interest, and caused it to make a great impression on me. I happened to be staying for a few days in a very fashionable watering-place in England, where there resided a family of great wealth and consideration in society; the eldest son of which had married a lady of large fortune and high connection. This lady had recently been confined of her first child; and, as may be readily supposed, the attendance upon her had been a matter of warm ambition among the local practitioners; and the gentleman who carried off the prize was, I fancy, more envied than congratulated by his confreres.

"I met this gentleman accidentally in society, and the following morning he called on me in a state of painful agitation and distress. 'I am,' he said, 'in a terrible dilemma, and fear I am a ruined man.' He then proceeded to tell me that he had attended Mrs. — three days before; that she had rather a severe labor, and that at the end of thirty hours, finding the labor not likely to terminate by the natural efforts, the head having remained stationary for several hours, low down in the pelvis, and pressed strongly against its floor, he had delivered her with the forceps, without, as he assured me, any difficulty whatever. All then seemed well, but next day, the lady was uncomfortable, restless, feverish, and rather larger than she ought to be, and this state went on increasing until the third or fourth day, when, to his horror, the urine began to trickle away incessantly, and a slough, about the size of a sixpence, was discharged from the vagina. He at once, naturally enough, concluded that a vesical fistula was established; and I, taking his account as my guide, thought there was but little doubt that his worst apprehensions would be realized.

"At his urgent request, I accompanied him to visit the lady, whom I found with a hot skin, much headache, a very quick pulse, a very distended abdomen, which was moreover so tender that she could hardly bear it to be touched; but I distinctly ascertained the presence of fluid. On examining *per vaginam*, I could not detect by the finger any breach of surface along the anterior wall, or back of the bladder, and I suggested to Mr. — that it would be well to pass a catheter into the bladder; which, at his request, I did; and gave exit to a quantity of urine, sufficient to fill an ordinary wash-hand basin. Subsidence of the abdominal swelling immediately took place, the lady felt inexpressible relief, and from this day went on well.

"The truth was, that the bladder had been forgotten by all the parties concerned; and the patient had never passed water since her confinement, nor felt a desire to do so; until at last the bladder became so distended, that the resistance at its neck was overcome, and the urine leaked out at the front, as fast as it was pumped in from the ureters at the back; and it so happened that just as this began, a small slough had separated from the mucous membrane of the posterior wall of the vagina, which had been strongly pressed on by the head for several hours.

"4th. Another state, not exactly ranging under any of the former kinds, seems to be of a purely nervous or hysterical character, and mixed up with a certain amount of *mauvaise honte*. The patient has a decided desire to pass water, and suffers distress from its retention; but has, at the same time, the greatest reluctance to make the necessary effort, and *positively refuses to try, if any one, even the nurse, is present*, declaring that it would be impossible for her to succeed.

"Under those circumstances, suitable arrangements should be made by the nurse, and the patient then left by herself, for a time, during which she may succeed in accomplishing the desired object; if she does not, some anti-nervous medicine should be given, with strong assurances of its potency in removing such difficulties; let her try again during our absence, and if she has not succeeded when we come to pay our next visit, we must declare that longer delay would be unsafe, that we will wait a little while in the drawing-room, and if she does not then succeed, that we must draw off the water before we leave the house; this generally insures success.

"In many of these cases they do not succeed, because they do not make the proper effort; and this, I believe, is oftentimes, simply because they cannot, and not always because they *do not choose*; this state of nervous inability ought to meet with much tender consideration. I may observe here, that I have never met with this peculiar form of affection, except in the higher grades of society, and almost always in women of a highly sensitive nervous temperament, some of them having experienced a similar difficulty before marriage, and also under ordinary circumstances distinct from pregnancy.

"Now, is this state which I have just been attempting to describe, analogous to, or identical with another, which I have a few times met with in practice, and which may be thus described: A lady in perfect health retires to her bedroom for the night, and before lying down to rest, attempts to make water, and finds she cannot—she is much surprised—goes to bed, and perhaps falls asleep; in the morning, she is in great distress, but still unable to empty the bladder, and now her pain is so great, she is compelled to seek for assistance—the catheter is introduced, and all her trouble is at an end; or, perhaps, for several days, its use continues to be required, and then all goes on as well as ever; but, in either case, no circumstance of general ill-health, or local derangement or displacement can be discovered. The woman, in fact, is otherwise quite well.

"The year before last a married lady, of a highly nervous temperament, so affected, drove six miles into town to my house, in great torture. I drew off the water, and she required no further assistance.

"Last year, I was urgently summoned to see an equally nervous maiden lady similarly situated; on laying my hand on the abdomen I felt a tumor, as large as a melon, and as hard as a cricket-ball; and per vaginam, it really, at first, suggested the idea of a fibrous tumor of the uterus, this organ being quite displaced. I introduced the catheter, drew off a large accumulation of urine, and the abdominal tumor—which was nothing more than the distended bladder—at once disappeared. The feature in this case which particularly arrested my attention, was the extraordinary hardness and the distinct outline of the abdominal tumor, which would readily have caused it to be mistaken for a solid morbid growth.

"I may here observe that, in the well known case of the virgin mock prophetess, Joanna Southcott, there was felt, by competent judges, a circumscribed tumor in the abdomen, which was supposed to be the gravid uterus. Dr. Reece, in his published history of the case, says: 'In that part occupied by the womb, there was a firm circumscribed tumor as large as a man's head, bearing the shape of the womb; I have no doubt of its being an enlargement of that organ.' But when she died no tumor existed, and that which was felt during life was attributed to the prophetess having learned to retain the urine until the bladder became considerably distended; which seems highly probable.

"In my case last related, it was necessary to relieve the lady every day for a week; when she perfectly regained the power of micturition. I may just mention, that the remedy which seemed to remove her inability was the ergot of rye; did it do so by stimulating the fibres of the uterus in the first instance, and then, by consent, those of the bladder? Perhaps so; but as the same agent has produced a similar effect in men, a direct influence may be equally admitted."

On the Action of Galvanism upon the Contractile Structures of the Gravid Uterus, and its remedial power in Obstetric Practice. By F. W. MACKENZIE, M. D. ("Proceedings of the Royal Medical and Chirurgical Society," February 23, 1858.)

In his introductory remarks, the author draws attention to the present state of professional opinion respecting the effective and remedial powers of galvanism upon the gravid uterus, and he pointed out the very different conclusions which different observers had arrived at. In this divided state of opinion, it had appeared to him that some further investigations might be usefully undertaken, and he submitted that two questions of a preliminary nature required

to be decided before the agent could be satisfactorily employed in midwifery. 1st. The nature of the influence exercised by it upon the contractile structure of the gravid uterus; and, 2dly, the best mode of applying it so as to obtain the full benefit of such influence. Believing that these questions could not be satisfactorily solved by observations made exclusively upon the human female, the author had planned and instituted some experiments upon the gravid uterus of the lower animals, in which the organ was exposed, and the exact influence exercised by it was observed. From these experiments, it was shown that galvanism exercises a remarkable and peculiar influence upon the uterine fibre; and it further appeared, after many observations, that this was most powerfully exercised when the galvanic current was directed longitudinally through the uterus from the upper portion of the spinal cord in a sustained and continuous manner. The local application of galvanism to the uterus was less effective; individual shocks produced no appreciable effect upon it, and a current directed transversely through the organ produced only a partial contraction of it in the direction of the current. Guided by the information thus obtained, the author had employed galvanism in the manner suggested by these inquiries in several very critical cases with remarkable success. The first referred to was that of a lady who had had repeated floodings in connection with an early abortion, owing to an imperfect separation and expulsion of the ovum. In this case every available means had been tried to stimulate the uterus and control hemorrhage without success, and the patient's condition had at length become highly critical. In this emergency a sustained current of electricity was directed longitudinally through the uterus from the upper portion of the spinal cord, and under its influence the cervix uteri became relaxed and expanded after the first application, and uterine action set in after the second, which was followed by the expulsion of an organized membrane, upon which the hemorrhage ceased, and the patient rapidly recovered. The second was a case of placenta prævia, in which several alarming hemorrhages had occurred before labor had commenced. In this a sustained current, applied in the manner stated for six hours, not only prevented any further hemorrhage, but so accelerated the dilatation of the os uteri, that the hand was readily introduced, and delivery completed with safety to the patient, although the child, from the extensive separation of the placenta, was stillborn. In a third, excessive hemorrhage had occurred in a primipara in the last month of pregnancy, and, as the placenta was felt to be attached to the cervix uteri, it was thought desirable to bring on delivery. With this view a sustained current was applied for three hours; the hemorrhage was almost immediately arrested, and the labor had already advanced so rapidly, that in a few hours afterwards it was completed by the birth of a living child. The author referred to other cases, in which he had successfully employed galvanism in obstetric practice, and, with reference to those related, submitted that they appeared to him to warrant the three following conclusions:—

1. That a sustained current of electricity, of moderate intensity, passed through the gravid uterus in the manner described, exercises a remarkable influence in increasing the tonicity and contractility of the uterine fibre.

2. That in such increased tonicity or contractility of the uterine fibre, so excited and sustained, we have a powerful and reliable means of moderating and controlling uterine hemorrhage, whether of the accidental or unavoidable variety, and of simultaneously accelerating the dilatation of the os uteri and the general progress of the labor.

3. That such sustained current of electricity may be continued for a lengthened period, when the object to be attained requires it, without any appreciable pain or inconvenience to the mother or danger to the child.

In conclusion, the author briefly considered the objections which had been raised to the employment of galvanism in obstetric practice, and pointed out some fallacies, as he believed, in the conclusions which had been arrived at by Dr. Simpson.

IV.

REPORT ON PHYSIOLOGY.

The Cause of the Coagulation of the Blood; being the Astley Cooper Prize Essay for 1856, with additional observations and experiments, and with an Appendix showing the bearings of the subject on Practical Medicine and Pathology. By BENJAMIN WARD RICHARDSON, M. D. (London: Churchill, 1858.)

Dr. RICHARDSON's prize essay is a remarkable work—remarkable as well from the results made known in it, as from the methods of research employed. The whole work is a model of experimental physiological research, and the history of the discovery contained in it will fill an honorable place in the history of the inductive sciences.

Fully perceiving the truth so well set forth by Cousin, that he who neglects the history of a science, or a subject, "places himself in the position of the first inventor, and puts gratuitously against himself the same chances of error; with this difference, that the first errors having been necessary, have been useful, and are more than excusable, while the repetition of the same errors is useless for others and shameful to himself." The author first proceeds to examine the physiological history of the coagulation of the blood. Then, after examining the doctrines at present in vogue respecting the coagulation of the blood, he proceeds to recount the results of his own observations and experiments. This is the raw material out of which he has wrought his discovery.

"In the course of my inquiries into the causes of the coagulation of the blood, I have observed with special care the condition of that fluid after death in five hundred and forty-three cases, occurring either in man or in inferior animals. In these cases the forms of death have varied widely. In the human subject they have included deaths from sudden syncope, epilepsy, apoplexy, enteritis, croup, pneumonia, bronchitis, bronchorrhœa, phthisis, mesenteric disease, purpura, acute rheumatism, dropsy following scarlet fever, cyanosis, hæmoptysis, failure of the heart from fatty change, cancer (the epithelial and medullary forms), aneurism of the aorta, atheromatous and ossific disease of the aorta, adhesion and ossification of the pericardium, simple starvation, cirrhosis, degeneration of the heart from drunkenness, hydrocephalus, lateral compression of the chest, ulceration and stricture of the œsophagus, icterus, general dropsy from mitral disease, dilatation of the right side of the heart, senile decay, and hanging. In the human fœtus, I have examined the state of the blood in the sixth, seventh, eighth, and ninth months of development; as well as in the cases where death has occurred, at or soon after delivery, from extravasation of blood on the brain, from syphilis, from premature birth, from atrophy arising from disease of the placenta, and from mechanical injury to the head during labor.

"In various inferior animals, including pigs, sheep, oxen, dogs, cats, rabbits, guinea-pigs, and birds, I have observed the blood after death from the following causes: hæmorrhage, intestinal obstruction, poisoning by narcotic gases (viz., chloroform, ether, smoke of puff ball, carbonic acid, tobacco smoke, antimonuretted hydrogen, and prussic acid), poisoning by solid opium, by salts of ammonia and potassa, and by antimony; strangulation, both rapid and slow, drowning, electric shock, simple exposure to cold, peritoneal dropsy naturally and artificially produced, shock from blows on the head, extraction of the kidney, inhalation of oxygen, and inhalation of chlorine.

"I have also examined the blood in various stages of development, in the foetal pig, lamb and dog."

Dr. Richardson first details his own observations and deductions on the condition of the blood in the body under various physiological and pathological states. These observations refer to the normal coagulation of the blood in the body; to the separation of the fibrin within the body; to the semi-coagulated state of the blood produced by the inhalation of narcotic vapors, by the effects of cold, electricity, strangulation, &c.; to foetal blood; and to the absolute fluidity of the blood. The following are the deductions which he derives from his observations:—

"1. That in cases of immediately sudden death (death by electricity excepted), the blood coagulates, as a general rule, with moderate firmness; and in the ordinary mode, that is, by separating into two parts—simple red clot and serum: but that this process is quickened or delayed according as the circulatory canals are opened early, or left unopened.

"2. That in states of the body in which the blood is superfibrinized, either from active hyperinosis, or from relative increase of fibrin, there is often a modified form of coagulation, consisting of a separation of blood into three parts; viz., *fibrin* isolated, *blood-corpuscles* isolated or mixed up and held together by fibrin and serum.

"3. That in instances where life is destroyed by gradual arrest of respiration, the phenomenon of coagulation is only feebly exhibited; and that the same law obtains, in cases where death is induced by electricity, sudden exposure to intense heat or cold, the narcotics, and the alkalines.

"4. That an enfeebled movement of the blood in any part of the circulatory system is favorable to coagulation, and this especially if the respiration continue free.

"5. That by throwing into the circulation a large quantity of water, the process of coagulation may be prevented. That antimony produces a similar effect in many cases; that the like result may follow death from certain natural causes, as from cyanosis; and that the same effect has been observed by various authors to follow deaths from poisoning by phosphorus, arsenic, and amylene; as well as deaths from cholera, yellow fever, typhus, and uræmia.

"6. That the cause of imperfect coagulability of blood would appear to be due to one of two causes—to a positive deficiency in the elaboration of fibrin, or to the fact that the fibrin, being elaborated, is held in an abnormal state of solution in the liquor sanguinis.

"7. That such absence or unusual fluidity of the fibrin is attended, as a general rule, with a modification, consisting possibly of a partial solution of the red corpuscles."

Dr. Richardson next examines the influence of physical agents upon the coagulation of the blood. The effects of temperature; of the addition of water, and of fluids of different densities, to freshly drawn blood; of exposing blood to or of excluding it from the air; and of motion, are severally examined in a series of experiments of singular interest and rare fertility of resource; and as the results of these experiments the following facts are recorded:—

"1. The power of coagulation of blood is reduced in proportion as the blood is absolutely brought down in temperature. Such reduction of temperature may be carried to freezing point: the frozen blood remains uncoagulated until the application of heat; but, on the blood being thawed and exposed to a higher temperature, the progress of coagulation manifests itself. Conversely, coagulation is quickened in proportion as the blood is raised in temperature above its natural standard, near to the degree at which the albumen coagulates. If two specimens of blood, taken at the same time from the same animal, be placed in such positions as to insure an absolute difference in temperature, there is an absolute difference in the periods of coagulation.

"2. The addition of distilled water to blood, in the proportion of equal parts of each liquid, does not materially influence the period of coagulation, unless the temperature of the water added be raised to that of the blood; under which circumstances the coagulation is quickened. The addition of distilled water in

excess to blood retards coagulation; and, when carried to an extreme, causes a simple separation of fibrin in a pale flocculent or gelatinous form.

"3. The admixture of blood with fluids at or above its own density, materially retards coagulation, and in some instances gives rise to the separation of fibrin in an upper layer or coat.

"4. Free exposure of blood to air quickens coagulation. The vacuum also quickens coagulation. Exclusion from air, whether in a vessel of an animal, or in an inorganic structure, retards coagulation; and when to perfect occlusion pressure is added, the retardation is sustained.

"5. Agitation of blood in the open air quickens coagulation. Motion in a closed vessel retards coagulation. Blood received into a closed circuit made up of inorganic materials, and constructed so as to imitate closely in physical effects the circulatory system, may be kept in motion in such circuit for a brief period without coagulating; but ultimately the fibrin is deposited on the expanded parts of the circuit."

The chemical agencies influencing the coagulation come next in the order of inquiry, and first the effects of the agents existing in the blood, and which have the power of holding fibrin in a state of solution, are examined experimentally. The results are:—

"1. That the fluidity of the blood seems essentially to depend on the fibrin being held in solution by some chemical agent.

"2. That the free fixed alkalines, soda, and potassa, possess the power, in certain definite degrees, both of dissolving fibrin and of holding blood-fluid. That for holding blood permanently fluid, the proportion of either alkali must not be less than one grain to the fluid ounce, or one part in 505 by weight.

"3. That no normal blood-salt has the power of effecting the solution of fibrin, nor yet holding blood-fluid, except when added in proportions which would be incompatible with life if introduced into the circulation."

Dr. Richardson then proceeds to the final steps of his researches, and he writes thus:—

"In our preceding inquiries, physical and chemical, we have been led irresistibly to the conclusion, that motion is not sufficient to account for fluidity, nor rest for coagulation; we have seen that exposure to the air is not alone sufficient to account for coagulation, though it is a favoring circumstance; and that mere confinement from air will not of itself sustain fluidity. We have seen that contact with living tissues is not alone competent to account for fluidity; for, while coagulation occurs in the presence of a living tissue, we have also seen fluidity sustained under certain conditions in contact with inorganic materials. We have seen that temperature is not sufficient of itself to account either for fluidity on the one hand, or coagulation on the other; inasmuch as the normal temperature of the body favors the coagulation of drawn blood, and is yet combined in the body with the circulating fluid blood. We have seen in regard to the effects of chemical agents, that while fibrin is evidently held fluid by some chemical principle, it is most clear that this cannot be one of the *fixed* substances; or it would continue to sustain the fluidity of blood, whether within or without the body.

"We are thus driven, by the purest steps of exclusive reasoning, to the investigation of a new point—namely: Is the coagulation of blood dependent on the evolution of some volatile substance, under circumstances favorable to its extrication?

"The idea that the evolution of a gaseous product from the blood is the cause of coagulation, was indeed put forward, as has already been stated, by Sir Charles Scudamore and Polli, who supposed, also, that it was to the escape of carbonic acid gas that the process of coagulation is mainly due. Scudamore did not, however, prove this position, but the contrary; for he found that carbonic acid, passed through blood, had no marked effect in retarding coagulation. This important fact, however, both of them did prove: that coagulation proceeds in proportion as carbonic acid and other gases are given off—the most important observation that had been made on the subject since Hewson's remark regarding the effects of exposure to the atmosphere.

"On looking back to all that had been done, and to my own investigations,

the conviction became more and more powerful that, in principle, Scudamore and Polli were right respecting the escape of some volatile substance, however wrong they might be in detail. In this direction, indeed, all evidence points.

"In this chapter, as the details of physical experiments advanced step by step, this view of the evolution of gaseous matter advanced also so steadily and convincingly, as to become, by mere accumulation of circumstantial evidence, as near to demonstration as such evidence could bring it. Let us follow this chapter step by step, and examine to what it leads.

"*Temperature*, above the standard of the body, quickens coagulation; *cold* retards it, and carried to an extreme, altogether prevents it. *Water* at ordinary temperature added to blood, in proportion above the amount of blood used, retards coagulation, as though by retaining the volatile principle in solution for a longer time. *Fluids of greater densities* added to blood have the same effect. The *vacuum* quickens coagulation; the more intensely as the vacuum is more perfect. The same quantity of blood *exposed to air* over a wide surface, whether in thin stream or in extensive layer, coagulates more quickly than if retained in mass in a small space. Blood *occluded from air* in the vessel of an animal, or in organic tubes under cold and pressure, is prevented from coagulating. Blood *in motion in a closed circuit*, or in a vessel, has its coagulation retarded, while by agitation in the open air its coagulation is quickened.

"These facts lend irresistible evidence to the truth of the theory now before us for consideration.

"But, even with these strong arguments in its favor, the theory is far from being proved. Every effect which has been noticed might, after all, be only a coincidence. To test the truth of the theory, therefore, became a plain and necessary duty.

"In commencing an inquiry in this direction, I felt that it would be most rational and business like, not at once to examine the nature of the substances thrown off in vapor by coagulating blood, but to ascertain primarily whether that vapor itself had any influence. The result is given in the succeeding narrative.

"I fitted up a simple apparatus as follows. A Wolf's bottle, capable of holding three pounds of fluid blood, was fitted with three good corks, so as to make it quite air-tight. A bent tube was fitted into one of the corks, so as to descend nearly to the bottom of the bottle by one end, and to be inserted by the other in a smaller bottle placed near the Wolf's bottle. From the other side-opening passed also a glass tube, which merely dipped into the neck of the Wolf's bottle, and bent over so as to pass to the bottom of another small bottle, of the same size and shape as that already mentioned. The two small bottles were also securely corked; but, in addition to the tubes already named as passing to them from the Wolf's bottle two other tubes emerged from them. When the apparatus was fitted up, it was easy, by means of a small pair of bellows attached to the long tube proceeding from one of the small bottles, to throw a current of air through the whole of the bottles. The current, commencing in the attached tube, passed to the bottom of the small bottle, ascended through one of the bent tubes into the Wolf's bottle, descended to its bottom through the long arm of the tube, then ascended out of the Wolf's bottle, passed to the bottom of the other smaller bottle, and finally, ascending to the upper part of the smaller bottle, escaped through the open tube into the air.

"**EXPERIMENT CCXC.—Transmission of blood-vapor through blood.**—When the apparatus was quite in order, I obtained at one gush two pounds of blood from the throat of an ox. An ounce of this blood was poured into each of the smaller bottles, and the remainder into the Wolf's bottle by its middle opening, which was immediately securely closed. The whole apparatus was now accurately adjusted; and, the blood being still fluid, a gentle current of air was blown through. This current passed first through the blood in the small bottle; then through the blood in the Wolf's bottle; and finally, carrying with it the blood-vapor, into the blood in the third bottle. The result was in the highest degree striking. The blood, through which air was first passed, coagulated in two minutes; that in the Wolf's bottle coagulated in three minutes;

while the blood in the third bottle, which for a time received the full charge of the vapor, retained its red color and its full fluidity for eight minutes and a half; as long, in fact, as any vapor could be sent through it. When the vapor failed, and air only began to circulate, this blood coagulated feebly, the fibrin separating and floating at the top.

"I repeated this experiment frequently, with the same general result."

From these experiments it was obvious that in the blood-vapor lay the solvent of the fibrin, and it became a task to ascertain what this solvent itself could be. Those chemical writers who spoke at all about the vapor of the blood, named as its component parts water, carbonic acid, nitrogen and oxygen. Dr. Richardson ascertained by experiment that oxygen rather quickened than retarded coagulation, and that carbonic acid and nitrogen rather impeded the process. "The difference, however, is too slight to give either of them an importance as causes of fluidity." "At this point," writes Dr. Richardson, "I was brought to the same position as Sir Charles Scudamore; with the advantage of feeling morally sure that something remained in the rear which should be sought after" (p. 272).

In no writing had there been any reference to the possibility of ammonia being given off from newly drawn healthy blood, yet there seemed nothing objectionable to Dr. Richardson in such a view, for ammonia can be produced in the body. At any rate it was a fair subject for inquiry whether ammonia was given off from freshly drawn blood; and, if so, what influence it had on blood drawn from the body?

First, then, blood-vapor was tested by being passed over a stick dipped in dilute hydrochloric acid, but no well-known white vapor of chloride of ammonium was given off. A more delicate test was had recourse to. Blood-vapor was passed through hydrochloric acid, the acid was then "poured into a clean evaporating dish, solution of perchloride of platinum was added to it, and the mixture was carefully evaporated in the water-bath. The result was a deposit of crystalline salt of ammonio-chloride of platinum, which was afterwards well washed in a mixture of alcohol and ether" (p. 275). The experiment was repeated again and again, with the same results. The blood of oxen and of sheep was used in the experiments.

Another test was also used, namely, the production of microscopic crystals of chloride of ammonium from blood-vapors, by means of hydrochloric acid. "If a little pure hydrochloric acid be placed in a microscope-glass and held over a solution of ammonia for a moment, and the glass be then gently warmed, a field of the microscopic crystals will be formed" (p. 276). This test was made us of by placing (due precautions being used) a microscope-glass, moistened with hydrochloric acid, above the blood of oxen, sheep, and finally of man, and in every instance the result was most decided, numerous groups of crystals of chloride of ammonium being invariably formed.

Thus, then, it was clearly ascertained that ammonia (certainly in a minute quantity only) was evolved from freshly drawn blood. "That the fact, however interesting, and however contrary to the idea that ammonia would exist in the blood and make the round of the circulation without specific purpose, might after all be a mere coincidence, like the evolution of carbonic acid. The volatile alkali might have other causes than that of holding blood-fluid. It might be a mere excrete. To dig deeper, therefore, into the question, it was necessary to change the line of inquiry, to adopt an approach to the synthetical method, and to ascertain what effect ammonia produces when added to fibrin, or when added to blood" (p. 287).

The effects of ammonia, both in the solid state and in vapor, were examined in numerous experiments, and from them we learn, that ammonia not only possesses remarkable powers, even in very small proportions, of holding blood-fluid, but further, that blood to which ammonia has been added remains but temporarily fluid; that under favoring influences, the ammonia exerts its volatile force, leaves the blood, and allows coagulation. We learn, also, that in excess the solvent effect of ammonia extends from the fibrin to the corpuscles; but that (and this is an all-important practical fact) ammonia, added in more minute quantities, possesses the power of holding the fibrin in solution without

affecting the blood-corpuscles. Lastly, we learn that the same physical conditions which favor or retard natural coagulation of blood, also and in like manner favor or retard the coagulation of blood to which ammonia has been added (p. 300). This latter point is illustrated by numerous experiments.

Beyond this point Dr. Richardson rather indicates than enters into the various questions which are open for future conformation and research—the form of which the volatile alkaline solvent exists in the blood, the absolute quantity of ammonia required to hold fibrin in solution in the blood, &c. He treats also briefly of the buffy coat of the blood, and he sums up his essay in two major and in two minor propositions.

"*First major proposition.*—The primary and essential part of the process of coagulation consists in the evolution of a volatile principle of the blood.

"*Second major proposition.*—The volatile principle thus eliminated from blood is ammonia, differing perhaps in formula in different classes of animals, but serving essentially the same purpose in all.

"(a) As a result of the evolution of the volatile solvent from newly drawn and liberated blood, the fibrin, which has previously been held in solution in the serum by virtue of the alkalinity imparted to the ammonia, is transformed from the fluid to the solid condition; its particles, coming together, constitute with the blood-corpuscles and serum, in ordinary coagulation, the red clot; and the after separation of the serum is due to the contraction of the fibrin, by the continuance of the same process" (pp. 338–339).

We shall defer a notice of the appendix to Dr. Richardson's prize essay until a future occasion. For ourselves, we should have preferred to have seen the articles in the appendix published apart from the essay. We would, however, in conclusion, express a strong opinion that the attention of students should be directed towards this work. It is not sufficient that students should be taught a certain amount of facts and theories; they should be taught, also, how to observe and reason. We know no work which will better convey to the student a correct idea of the difficulties which attend physiological and pathological research, and the mode in which those difficulties may be overcome, than this prize essay of Dr. Richardson. We know no work which gives a more hopeful and exhilarating idea of what may be done by steady and never-faltering perseverance. The influence of a work of this kind is not confined to its positive results; such a work has an all important weight in directing and stimulating research. While, therefore, we add our testimony to the great value of Dr. Richardson's discovery, we would direct particular attention to the value of his work as a means of tuition in the true method and character of physiological research—a subject too much neglected in our medical schools.

On the Variations in the Color of Venous Blood. By M. CLAUDE BERNARD.
("Comptes Rendus," Jan. 25, 1858.)

The facts contained in this paper show very conclusively that it is no longer possible to use the terms *venous blood* and *black blood* as synonymous.

In 1845, while engaged in certain experiments upon the kidney, M. Claude Bernard found that the vein proceeding from this organ contained *red blood*—blood which could not be distinguished from that contained in the accompanying artery. He found, also, that the blood was thus red while the secretion of urine was going on, and that it became black, and the whole kidney of a bluish color, when this secretion was suspended. This was the case equally in the dog, whose urine is always acid, and in the rabbit, whose urine is strongly alkaline during digestion.

More recently, M. Claude Bernard has also ascertained that the venous blood proceeding from the submaxillary gland is the subject of similar changes—that it is red during the period of secretion, and black at other times. He exposed the excretory duct of this gland in a dog, and introduced into it a small silver tube; then he isolated the nervous twig which proceeds from the lingual nerve to the gland. In this operation, the vein proceeding from the gland was also exposed. When the process of secretion was suspended, no fluid dripped from the tube which had been inserted into the duct, and the

blood passing through the vein was perfectly black; when the secretion was excited, either by passing a galvanic current through the nervous twig supplying the gland, or by putting a few drops of vinegar upon the tongue, fluid dripped from the tube, and, after a few seconds, the blood in the vein became so red that it could not be distinguished from the blood passing in the corresponding artery.

It is noticed, moreover, that the reddened venous blood is more diffuent, and less disposed to coagulate (sometimes, even, it did not coagulate at all), than the ordinary black venous blood.

On Certain Pathological Characters of the Blood-Corpuscles. By Mr. J. P. HENNESSY. ("Dublin Hospital Gazette," Nov. 15, 1857.)

An extended series of microscopical observations has led Mr. Hennessy to two results with regard to healthy blood:—

1st. That the particles in the lower part of the clot were smaller than those in the upper part, and that, in the bloody serum, the particles which subsided to the bottom of the vessel were smaller than those which floated at the top. In every case, the redness appeared to be in an inverse proportion to the size. 2d. That after removing the greater part of the fibrin by stirring the blood with a bundle of twigs, the particles which were not disintegrated were larger and paler than usual.

With regard to inflamed blood, that is, blood drawn from a patient suffering from an inflammatory disease, or blood taken from a part of the body in a state of inflammation, Mr. Hennessy has arrived at the following results:—

1st. That the particles were smaller and darker than those of healthy blood; the average size of the former being the 4500th part of an inch. 2d. That when some of these particles were exposed to the air and dried, they became larger, attaining, in general, the size of healthy particles treated in a similar manner. (Mr. Hennessy exemplified this by a copious extract from his notes.) 3d. That where the blood drawn presented the buffy coat, the few particles among the meshes of fibrin in the upper part of the clot were very large compared with those at the bottom of the clot. 4th. That on shaking a vessel containing blood from which the clot with buffy coat had been removed, the particles which subsided most rapidly were found to be the smallest and darkest.

"The principal fact which may be gathered from these results is one to which I wish to direct particular attention, viz: that the particles in blood in a state of inflammation are smaller, darker, and of higher specific gravity than those of healthy blood. Regarding this change in the blood-corpuscle as one of the *propria* of inflammation, we are led at once to consider the connection it may have with other phenomena attendant on that state. The questions arise: how far it may account for the appearance of the buffy coat; how far it may go to explain the well known changes of temperature, color, size, and pain; and whether it may not also furnish some explanation of the action of certain therapeutic agents; in short, how far this molecular change may be employed as the basis for a satisfactory theory of inflammation. The immediate, or rather the concomitant physical phenomena attendant on the contraction of the blood particles, are a development of latent heat, an increase of color, and an increase of specific gravity. Whatever may be the amount of heat developed, however small in each particle the change of color or increase of specific gravity may be, these are inevitable results of the contraction. On the other hand (and this is a point of great interest, to which I will shortly advert) when the particles are regaining their normal state, an opposite series of phenomena must be presented. Let us apply these results to the physical signs of inflammation. The development of latent heat will explain the rise of temperature. The contraction will affect the color of an inflamed part, not only by rendering the particles darker, but by permitting them to flow into vessels from which their size had previously excluded them. In becoming smaller, they will necessarily become harder, and be enabled to burst through the walls of the capillaries, which would account for the phenomena of infiltration and pain. The

increase in specific gravity, and a diminution in size, are the two causes which conspire to form the buffy coat; the former causing the particles to sink more rapidly, and the latter allowing them to pass through the coagulating meshes of fibrin with less chance of being obstructed."

With reference to the effect of therapeutical agents, Mr. Hennessy quoted the observations of Muller, Copeland, Wedemyer, and Hastings, &c. In corroboration of his statement that the particles became smaller, he quoted Dr. Gulliver, "Phil. Mag.," vol. ii., 1840, p. 326; Mr. Wharton Jones, "Guy's Hospital Reports," vol. xvii. p. 34; Donné, "Journal Hebdomadaire," No. 40, vol. vi.; Professor Schultz (through the "Lancet," 38, 39, vol. ii. pp. 713, &c.); Dr. Kölliker, "Mikroskopische Anatomie," p. 253; Heller, Emmert, Barry, and others. With reference to the dilatation of the blood-particles, Mr. Hennessy quoted Mr. Wharton Jones, Dr. Currie, &c. With reference to the specific gravity, he quoted the researches of Becquerel and Rodier, Heller, M. Lebert, Dr. Polli, and Dr. Rees. With reference to the changes of temperature, he quoted Dr. Traube, "Über Krisen und Kritische Tage," Dr. Roger, Sir B. Brodie, "Physiological Researches," p. 121, Professor Dunglison, and Mr. Earle.

It has been noticed by Mr. Wharton Jones that when the inflammatory state is passing off, the particles become larger. This exactly corresponds with the well-known observations, that the decline of acute disease is marked by an abnormally low degree of temperature, even whilst the action of the heart is still keeping the circulation above the normal standard.

Mr. Hennessy stated that he was pursuing his inquiries into the microscopic differences between venous and arterial blood, but that as yet he had not arrived at any satisfactory conclusions on the subject. The difficulty of preparing specimens of venous blood was very great. He adverted, however, to observations of Prevost and Dumas, of Liebig the younger, of Dr. Davy, and of M. Beclard, with respect to the relative capacities for heat and to the relative specific gravities of arterial and venous blood, for the purpose of suggesting an extension of the molecular theory to the phenomena of animal heat.

On the Influence of some Surgical Affections upon Animal Heat. By M. DEMARQUAY. ("Comptes Rendus," No. 13, 1856.)

M. Demarquay observes that although many observations have been made upon the modifications of the temperature produced by internal diseases, with the exception of Hunter's upon inflammation, and some researches upon the effects of ligatures on large vessels, nothing has been done with respect to surgical affections. He treated upon the subject in his inaugural dissertations in 1847, and since then has continued to pay attention to it; and the present memoir is an account of some of the results of his observations.

The pyrexia following amputations and other operations is accompanied by an elevation of temperature proportioned to the amount of reaction; but when the case becomes complicated by other phenomena, as phlebitis or erysipelas, the temperature may undergo notable variations. Thus, in a case of amputation of the thigh, followed by phlebitis and purulent affection, the thermometer has risen from 97° or 99° to 104° Fahr.; and although this increase may seem in itself but trifling, yet the observations of Andral and others have noted but a few degrees of elevation only even in the intensest fevers. If, however, the elevation of the general temperature is inconsiderable, this is not the case with respect to the local temperature. Thus, in phlegmon and erysipelas, comparing the condition of the affected parts with that of the healthy ones, it has been found that while the general temperature of the body may have undergone no modification, that of the affected part has undergone a notable increase, exceeding that of the neighboring parts by from 2° to 5° C. All serious wounds which produce febrile action induce an elevation of general and local temperature, but when the membrane covering the granulations has become well organized, the temperature is then found to be like that of the surrounding parts; so that ice applied under such circumstances would abstract normal, not morbid, caloric. Experimenting upon dogs, too, the author has observed

that the application of ice leads to a considerable falling of the thermometer in the case of subcutaneous wounds. The same experiments showed that a wound that had undergone such diminution in its temperature, quickly recovered this, and went beyond it, the temperature of the wound thus undergoing a series of elevations and depressions, according to the quantity of ice employed, and its degree of fusion. It is evident that such a powerful modifier requires great reserve in its employment; and most of the Paris surgeons reasonably prefer in the case of great breach of surface, tepid irrigations to these freezing applications. As to the temperature in aneurisms, MM. Demarquay and Monneret have on several occasions observed in arterio-venous aneurisms of the lower extremity, an elevation of from 1° to $2\frac{1}{2}^{\circ}$ C.; but they have never observed a similar difference in the case of such aneurism existing at the bend of the elbow. When in a limb, the subject of aneurism, the circulation has undergone no considerable disturbance, no important variation of the animal temperature is observable; but when complications, such as phlegmon, are present, an elevation of 2° may take place. After ligation of the femoral and humeral arteries, the author has found a diminution of temperature to take place, and the experiments upon animals which he has made with MM. Duméril and Lecointe demonstrate the accuracy of the assertion, that every ligation of an important artery, performed so as to avoid all injury to the veins and nerves, gives rise to a diminution of the temperature of the limb beyond the ligation. *A priori*, a considerable modification in the temperature of a limb might be expected in limbs suffering from senile gangrene; and the author has been somewhat surprised to find only a difference of $1\frac{1}{2}^{\circ}$ or 2° C. between the two limbs, except in one case, when the difference amounted to 5° .

The following are the conclusions of the memoir: 1. Purulent infection and erysipelas give rise to an elevation of 2° to 3° C. 2. Circumscribed inflammations, as phlegmon or local erysipelas, give rise to an increase varying from 1° to 5° . Ice quickly gives rise to a temporary diminution, but the parts afterwards not only recover their former temperature, but exceed it. 3. A true aneurism, if the limb is healthy, gives rise to no change of temperature, but arterio-venous aneurism, and especially in the lower extremity, increases it by 1° to $2\frac{1}{2}^{\circ}$ C. 4. Hunter and his school have examined into the effects of ligation of vessels on the temperature, but have arrived at contradictory results. From my observations it follows that ligation of the artery and the vein in arterio-venous aneurism of the lower extremity, gives rise to an elevation of temperature; while when the principal artery of a limb is alone tied, there is always a diminution of temperature. 5. In senile gangrene there is always a diminution of temperature of from 1° to 5° C. in the parts situated above the mortification.

The Influence of Water-drinking upon the Metamorphosis of the System. By Dr. MOSLER. ("Archiv d. Vereins. f. gemeinsch. Arbeiten," Bd. 3, 1857; and "Medico-Chir. Rev.," Jan. 1858.)

Mosler contributes a valuable essay "On the Influence of Water on the Metamorphosis of Matter," which has gained the first prize from the *Verein für Gemeinshafliche Arbeiten*. The author divides his researches into those made on children, those on adult females, and those on adult males; in all of them he examined the phenomena of metamorphosis—*a*, when the ingesta and the manner of living were as usual; *b*, when the water taken with the fluid articles of food was withdrawn; *c*, when various quantities of water were added to the amount of food. The water employed was pure, containing in sixteen ounces only 2.774 grains of solid substances, and 1.1036 grain carbonic acid. Abstinence from taking water led to the diminution of the secretions and excretions, principally those from the kidneys. Although the specific gravity of the urine became much increased, yet not only the quantity of water, but also the total amount of solids excreted within a certain period was considerably lessened, and most so that of the urea, after which ranks the chloride of sodium, the phosphoric and sulphuric acids. Lesser was the decrease in the excretion through the skin and lungs. The stools were more bound, the

tongue rather dry, the appetite defective. Increased ingestion of water caused an acceleration of the total metamorphosis of matter, which in some instances manifested itself more through the skin than through the other organs of excretion; in most cases, however, principally through increased flow of urine containing an increased amount of solid constituents; the increase was largest as regards urea, after which follow chloride of sodium, phosphoric acid, and sulphuric acid. These phenomena were accompanied by loss of weight of the body. On the days succeeding the increased ingestion of water the excretions were diminished, and the body gained weight.

On the Physiological Action of Strychnia and Brucia. By Dr. HARLEY, Professor of Practical Physiology in University College, London. ("Lancet," June 7 and 14, and July 12, 1857.)

The investigations of Dr. Harley upon the physiological action of strychnia and brucia are calculated to shed much light upon the mode in which muscle is affected by chemical and analogous agencies.

These investigations, which are of extreme importance in a therapeutical as well as in a physiological point of view, show very clearly that these poisons do not cause death by exhaustion, or by suffocation, arising either from closure of the glottis, or from spasm in the walls of the chest, but "by destroying the powers of the tissues and fluids of the body to absorb oxygen and give off carbonic acid." It is argued that death is not caused by exhaustion, because it cannot be supposed that the system can be fatally exhausted in less than two minutes. It is proved that death is not caused by closure of the glottis, because the animal dies as speedily when its windpipe has been freely opened before the administration of the poison. It is proved, moreover, that spasm in the walls of the chest is not the cause of death, because artificial respiration can be performed without averting or even deferring the fatal issue. At the same time, the animal seems to "feel a want of oxygen," and that this is one cause of death Dr. Harley shows very plainly by the examination of its blood.

In this examination Dr. Harley uses the fresh blood of the calf. Of this blood he takes two portions, and mixing a small quantity (0.005 grammes) of strychnia with one, he ascertains the amount of oxygen absorbed and carbonic acid given off by examining the composition of air that has been left in contact with each. In each case the blood is thoroughly saturated with oxygen by shaking it with fresh quantities of air; and after this it is corked up in a graduated tube with 100 per cent. of ordinary air, and frequently agitated for the next twenty-four hours. At the end of this time, the air contained in the tube is analyzed by Bunsen's method, and the following is the result arrived at:—

	Composition of common air.	Composition of air after having been in contact with simple blood for 24 hours.	Composition of air after having been in contact with blood containing strychnine for 24 hours.
Oxygen . . .	20.96	11.33	17.82
Carbonic acid . .	.002	5.96	2.73
Nitrogen . . .	79.038	82.71	79.45
	<hr/> 100.000	<hr/> 100.00	<hr/> 100.00

The air, that is to say, which had been in contact with the blood containing strychnia has more oxygen and less carbonic acid than the air which had been left in contact with simple blood; and thus it would appear that less oxygen has been absorbed and less carbonic acid given off by the blood containing strychnine. When brucine is used instead of strychnine, the only difference in the result is one of degree:—

	Composition of common air.	Composition of air after having been in contact with simple blood for 24 hours.	Composition of air after having been in contact with blood containing brucine for 24 hours.
Oxygen . . .	20.96	6.64	11.63
Carbonic acid . .	.002	3.47	2.34
Nitrogen . . .	79.038	89.89	86.03
	<hr/> 100.000	<hr/> 100.00	<hr/> 100.00

As with strychnine, therefore, so with brucine, the air which had been left in contact with the poisoned blood, in that it contains more oxygen and less carbonic acid than the air which had been left in contact with the pure blood, has absorbed less oxygen and given off less carbonic acid than the pure blood.

Dr. Harley has also shown very conclusively that strychnine has, in addition, a direct power of destroying muscular irritability.

In one of these experiments, in which the hearts of two frogs are cut out and placed, one in distilled water, the other in a solution of acetate of strychnine, the result is, that the heart placed in distilled water goes on pulsating regularly for twenty-four hours, and that the heart which had been placed in the poisoned solution not only ceases to beat in a few minutes (from one to five, according to the strength of the solution), but even passes into a state of rigor mortis before the other heart has lost its irritability.

In the other experiments, the hind legs of a frog are prepared after Galvani's method, and placed one in a vessel containing distilled water, the other in a vessel containing a strong solution of acetate of strychnine. The muscles and nerves of these limbs are separately tested by galvanism, and the result is, that the muscles of the limb immersed in simple water are seen to contract freely after the muscles of the limb immersed in the poisoned solution have passed into the state of rigor mortis.

The action of the strychnine upon the muscles, indeed, may be supposed to be in some degree analogous to the action upon the blood, for, as Dr. Harley points out, the destruction of the "irritability of the muscle may be supposed to imply the suspension of that process of absorbing oxygen and giving off carbonic acid—the so-called respiration of the muscle—which is certainly most energetic when the irritability is most marked."

At any rate, these very important facts go to show that the action of strychnine, in producing muscular contraction, is not an action of stimulation, for they show that the poison acts first of all by rendering the blood less apt to appropriate its stimulating element, oxygen, and, in the second place, by diminishing the irritability of the muscles.

In another place, moreover, Dr. Harley says: "Many other poisons, I doubt not, exert their influence in a similar manner; for I have found that hydrocyanic acid, chloroform, nicotine, alcohol, ether, morphine, and several other narcotics, have the same power of destroying the property possessed by the organic constituents of the blood of absorbing oxygen and exhaling carbonic acid."

Observations on the Poison of the Upas Antiar. By Professor KÖLLIKER.
("Proceedings of the Royal Society," Feb. 15, 1858.)

The results of Professor Kölliker's investigations into the effects of the antiar upon frogs are the following:—

- "1. The antiar is a paralyzing poison.
- "2. It acts in the first instance and with great rapidity (in 5 to 10 minutes) upon the heart, and stops its action.
- "3. The consequences of this paralysis of the heart are the cessation of the voluntary and reflex movements in the first and second hour after the introduction of the poison.
- "4. The antiar paralyzes, in the second place, the voluntary muscles.
- "5. In the third place, it causes the loss of excitability of the great nervous trunks.

"6. The heart and muscles of frogs poisoned with urari may be paralyzed by antiar.

"7. From all this it may be deduced that the antiar principally acts upon the muscular fibre and causes paralysis of it.

"So much for this time. My experiments with the antiar upon warm-blooded animals have only begun, and I am not yet able to draw any conclusion from them. As soon as this will be possible, I shall take the liberty to submit them to the Royal Society, together with the results of my experiments with the *upas teinté*, which poison I had also the good fortune to obtain through the kindness of Sir Benjamin Brodie and Dr. Horsfield. With regard to the antiar, I may further add that experiments made independently, and at the same time, by my friend Dr. Sharpey with this poison, have conducted to the same results as my own."

On the Injection of Urea and other Substances into the Blood. By Dr. W. A. HAMMOND, Assistant Surgeon United States Army. ("North American Medico-Chirurgical Review," March, 1858.)

The principal object in undertaking the experiments detailed in this paper, is that of deciding upon the correctness of the theory advanced by Frerichs explanatory of uræmic intoxication. As is well known, this distinguished author regards the symptoms of blood poisoning, so frequently present in Bright's disease, as not directly depending upon the presence of urea in this fluid, but as being caused by its conversion, through the agency of a ferment, into carbonate of ammonia.

Frerichs performed two series of experiments, which he regards as tending to sustain his hypothesis. In the first series he injected a solution of urea into the blood of animals whose kidneys had been previously removed. In from an hour and a quarter to eight hours they became restless, and vomited. Ammonia was detected in the expired air, and simultaneously convulsions ensued. Death occurred in from two hours and a half to ten hours from the commencement of the experiment. Ammonia was found in the blood, the contents of the stomach, and in the bile and other secretions.

In the second series a solution of carbonate of ammonia was injected. Convulsions ensued almost immediately, and were quickly followed by stupor. The respiration was labored, and the expired air was loaded with ammonia. This substance, however, gradually disappeared, and the animals recovered their senses.

Frerichs offers no explanation of the nature of the ferment which he conceives to be necessary to produce uræmic poisoning, nor does he even attempt to demonstrate its existence, except indirectly, through the experiments above cited.

While admitting the facts set forth by these experiments, Dr. Hammond differs with Frerichs in his theory. Ammonia has often been met with as a constituent of the expired air of healthy individuals. He has himself frequently detected it in such cases; it has been demonstrated to be constantly present in the blood; and Frerichs' own experiments (those of the second series) show that it was not capable of causing death even when injected directly into the circulation, and when its presence in the blood was evidenced by its being exhaled in large quantity from the lungs.

The fact that in the first series of investigations the kidneys were extirpated, while in the second the animals were unutilated, while different substances were used in each, prevents our drawing any comparative conclusions from the results obtained.

The experiments to which the present paper relates consisted of two series. In the first the substance was injected into the blood of the sound animal; in the second the kidneys were previously extirpated. The two series were, as far as possible, alike in every other respect. The substances injected in both series were urea, urea and vesical mucus, carbonate of ammonia, nitrate of potash, and sulphate of soda.

Dr. Hammond's conclusions are :—

1st. That urea (simple and combined with vesical mucus), carbonate of ammonia and sulphate of potash, when injected into the bloodvessels of sound animals, do not cause death.

2d. That nitrate of potash, when thus introduced, is speedily fatal.

3d. That death ensues from the injection of any of the foregoing named substances into the circulation of animals whose kidneys have been previously extirpated.

4th. That in neither case does urea when introduced directly into the circulation, undergo conversion into carbonate of ammonia.

The Histology of the Supra-renal Capsules. By GEORGE HARLEY, M. D., Lecturer on Practical Physiology in University College, London. ("Proceedings of the Royal Medical and Chirurgical Society," December 8, 1858.)

The author begins this paper by pointing out that the supra-renal capsules could not properly be said to diminish in proportionate size and activity of function with advancing years. He also exhibited several preparations of supra-renal capsules taken from individuals of different ages, to prove that their development proceeded at a certain ratio after birth. He moreover states that as they did not become proportionally more atrophied in old age than many of the other organs, it might naturally be supposed that they had a certain function to perform in adult as well as in foetal life. Dr. Harley then calls attention to the great variety of size and shape of the supra-renal capsules throughout the vertebrata, and afterwards proceeded to point out the appearances presented to the naked eye by healthy supra-renal capsules. He denies the existence of any large cavity in the centre of the healthy human supra-renal capsule, and said that when such was found it was the result either of accidental rupture of the medullary substance, or as the effect of disease. He points out, however, the existence of a number of small sinuses in the centre of the organ. Dr. Harley says that the cortical and medullary portions of the supra-renal capsules, which are so different in color, have equally distinct microscopical characters. The former, which constitutes the greater part of the organ, consists of a number of cells arranged in irregularly sized rows in a fibro-areolar matrix; the rows of cells appearing like a number of dark-yellow columns placed perpendicularly to the surface. The cells when examined individually are seen to be composed of a homogeneous cell-wall, filled with granules, pigment, and some fat-globules. Each cell possesses a well-marked nucleus, although it is not always visible without the employment of reagents. The easiest way to demonstrate the existence of a nucleus, the author said, was to color the cells with carmine. When floating free in the field of the microscope the cells appear irregularly round; but when grouped together they have a somewhat polygonal form. The cells are arranged in a number of larger and smaller masses, which are placed in regular rows, and thus give rise to the columnar appearance. In some cases a column is composed of several cell-masses of different lengths, placed end to end. In others it consists almost entirely of one long cell-mass. Each column, as well as each cell-mass, is separated from the others by delicate fibrous tissue, in which are imbedded the vessels and nerves. Sometimes the cell-masses present the appearance of long tubes, inclosing a single straight row of quadrilateral cells. Each cell-mass is closed at the extremities, and is surrounded by a delicate homogeneous membrane. The dark, slate-colored medullary substance of the supra-renal capsules has a very different structure from that just described. It is composed of a network of fibres, in the meshes of which are a number of large nucleated cells, which has been described by various writers as ganglion-corpuscles. Dr. Harley thinks, however, that these, like the cells in the cortical substance, are true secreting cells. The supra-renal capsules are very freely supplied with bloodvessels. Their course and distribution were minutely described.

The author concluded his communication by making a few remarks on the supposed function of the organ, in the course of which he observed that in the supra-renal capsules of the frog he had found blood corpuscles in various

stages of development. Each point of importance in the paper was fully illustrated by diagrams and microscopical preparations.

On the Functions of the Thyroid Body. By Dr. PETER MARTYN. ("Proceedings of the Royal Society," 1858.)

After referring to the form, situation, connections, and internal structure of the thyroid body, its large supply of blood, and its capability of sudden alterations of bulk, the author briefly adverts to the unsatisfactory explanations which have been offered as to its function, and then proceeds to state his own views, as follows:—

"The upper part of the trachea, the larynx, and the passage of the fauces and mouth, constitute the organ of voice; the two former are the essential or voicing part, as mechanicians call it, that which produces the tone. The larynx and trachea—taking a share in other functions and being associated by juxtaposition and attachment with contiguous organs—are always pervious and open for respiration; lengthen and shorten, fall and rise with the œsophagus in deglutition, and bend and turn with the universal motions of the head and neck.

"To admit of this great mobility and flexibility, a certain structure is necessary. The larynx is a triangular box, inclosing the apparatus of the chordæ vocales; its two cartilaginous sides or alvæ, diverging from the front, are not fixed but free at the back, being completed by soft parts; the trachea is composed of a succession of incomplete cartilaginous hoops or rings lying apart, the back and intervals being made up and the tube completed by soft membrane.

"Now the structure of a wind instrument, such as that of the human voice, requires the opposite properties. It must be rigid, tense and inflexible. The qualities of the tone will be in exact proportion to these properties. How then is the soft, slack and flexible vocal tube rendered thus rigid, tense and inflexible, and fit to produce pure tone? The muscles of the larynx, the thyro-hyoid and sterno-thyroid, merely raise or lower, or fix it in any position: not lying on, or being parallel to, but diverging from the vocal tube, they cannot affect the object referred to. It appears to me that the thyroid body is provided for this purpose. The act of uttering a tone or of speaking stops the return of the blood from that organ, distends and renders it tense, and from the nature of its attachment round the top of the trachea and on the free sides of the alvæ of the larynx, renders them fixed, firm and tense also. This effect is aided by the aforesaid muscles, the thyroid body being interposed and giving them more advantageous mechanical action. This tension may be in any degree, and on energetic speaking or singing, the increased size of the part and the fulness of the collateral veins may be seen. This is the reason of its large supply and free distribution of blood. An instance of the want of this tension in an instrument may be seen in the bagpipe, where the porte-vent is attached to the chanter or voicing part by a flexible joint or by leather, and the tone is in consequence squeaking and uncertain.

"Besides thus giving rigidity, firmness and tension to the organ of voice, the thyroid body also acts in another capacity—as a loader. In most musical instruments, loaders are used to render the vibrations slower and longer, and the tone in consequence fuller, louder and deeper. They compensate for want of size and space, and give to a small instrument, or to a small vibrating or voicing part of an instrument, the power and quality of a large one. The human organ of voice is eight inches long, and has the same power as, and better quality of tone than, the instrument that most nearly approaches it—the French horn, which is nine feet, or the 'vox humana' pipe of a moderate sized organ, which is from four to eight feet long. The economy of size in the human organ has always been wondered at, but never, that I know, explained. Besides the thyroid body, another part, the structures of which I shall describe on another occasion, aids in this admirable economy. The nearer mechanism of human design approaches to perfection, the more it resembles similar structures in animal mechanics. The base of all stringed instruments and musical

boxes is loaded; in most wind instruments the voicing part is thus loaded and strengthened, as in the organ pipe, horn, flute, clarinet, &c. The bassoon, which in its lower notes approaches the human voice, is uncertain and wheezy in tone for want of this provision.

"When the thyroid body is small and thin, the voice will be found to be small and shrill; when large, the tone will be full and sonorous; when it is morbidly enlarged, the voice will be deeper and more bass; and when very large, as in bronchocele, the voice will be smothered.

"The compass of the voice is in great part produced by the raising and lowering of the larynx, the shortening and lengthening of the vocal tube. The thyroid body partakes of this motion, at the same time firmly fixing and rendering tense the parts in each position. By its change of shape, bulk, and density—flattening and thinning when the larynx is raised, enlarging and bulging when it is lowered—it aids in giving the particular tone or pitch, high and acute in the first case, full and deep in the second; and, in like manner, by its varying shape, bulk, density, and pressure, it takes a great part in producing the wonderful qualities of modulation and expression peculiar to the human voice. In animated conversation, declamation and singing, this may be seen."

On the Analyses and Immediate Principles of Human Excrements in Disease. By Dr. MARCET, F.R.S. ("Proceedings of the Royal Medical and Chirurgical Society," January 22, 1858.)

The object of this communication is—1. To describe an easy and very practical method of analyses to be applied to feces in the diseased condition. 2. To show that the method of analysis in question is essentially anatomical or mechanical, and as free as possible from chemical reactions. 3. To show that in three instances of disease where the bile was prevented from flowing into the duodenum, the feces yielded a quantity of crystallizable fatty acids, (margaric and stearic acids), which immediate principles are known to be absent from healthy evacuations, except in certain cases depending on a peculiar diet. A few words may suffice for describing the analysis. The evacuations are exhausted with boiling alcohol, and the solution strained through muslin. On cooling, a precipitate or deposit occurs in the fluid, which is separated from the mother liquor by filtration. This deposit, after it has been washed with boiling alcohol, is found in healthy cases to consist of stearate and margarate, or soaps of lime and magnesia, with or without earthy phosphates—these compounds existing in the evacuations under examination in the form of immediate principles. The alcoholic washings or solution obtained from the deposit yielded, in cases of retention of bile; considerable quantities of free margaric and stearic acids. The clear original alcoholic extract being mixed with milk of lime, containing a considerable excess of water, is converted into muddy fluid, when a distinct precipitate will be noticed. After having collected this precipitate in a filter, washed it with water, and dried it on the water-bath, it is to be exhausted with a mixture of alcohol and ether. The clear extract thus obtained deposits on standing, in all healthy cases, impure crystals of excretine; a substance easily purified and prepared, perfectly colorless, by repeated crystallizations in alcohol and filtration through animal charcoal. The author had previously described the characters of excretine in communications to the Royal Society, published in the "Philosophical Transactions" for 1856 and 1857. Diseased excrements do not always contain excretine, as it was absent in those cases referred to in the present communication, where it was searched for. The lime precipitate exhausted with alcohol and ether, is now to be mixed with water, and decomposed by means of hydrochloric acid; chloride of calcium is formed, and an insoluble substance remains floating in the liquid; this he has found very abundant in some diseased cases, and also in a few exceptional instances after a vegetable diet; it consisted of margaric and stearic acids mixed with a considerable proportion of oleic acid. Finally, by concentrating the filtrate from the lime precipitate on the water-bath, and decomposing the residue with sulphuric acid, certain organic acids soluble in

water are obtained, possessed of a very pungent odor, and whose properties have not yet been investigated; the castings of carnivorous animals yield in this stage of the analysis butyric acid, a substance not present in healthy human evacuations. It must be remembered that the animal body contains a number of organic acids forming known soluble salts with lime, and consequently the examination of the filtrate from the lime precipitate in diseased cases is not to be neglected. The above description, although necessarily most incomplete, gives a rough sketch of the processes recommended for the analysis of feces; it has been put to the test for the examination of a very great number of human evacuations, and found to yield constant results in health; it is, therefore, perfectly adapted for the investigation of the composition of diseased excrements. Dr. Marcet now wishes to draw the attention to the circumstance that chemical reagents have been used as seldom as possible in these analyses, in order to avoid the decomposition of immediate principles or of compounds, such as they exist in the body. Alcohol and ether, with and without the application of heat, are the principal means employed. It is not impossible, however, to determine immediate principles by chemical analysis; and a remarkable instance of the aid obtained from chemistry in these investigations, is the fact, that by the analysis of the mass deposited in the original alcoholic extract of feces on cooling, he has been able to ascertain that it contains phosphoric acid, fatty acids, lime, and magnesia, exactly in such proportions as are required for the substances to combine in the form of earthy phosphates and earthy soaps. These compounds had, therefore, previously existed in the intestines in the form of immediate principles. Dr. Marcet then gives the detail of three cases in which he carried out his examinations.

An Experimental Inquiry into the Effect upon the Mother of Poisoning the Fœtus.

By Mr. W. S. SAVORY, Demonstrator of Anatomy at St. Bartholomew's Hospital, &c. (Pamphlet, 1858.)

Although we are in possession of absolute facts, which furnish clear and convincing evidence of the direct transmission from the mother to the fœtus, not only of certain diseases, but also of foreign substances—as camphor and oil, yet we had no conclusive facts in support of the converse proposition. However strong the argument from analogy might be, supported as it is by the record of cases of extreme interest, yet demonstrative evidence has been wanting of the direct absorption of foreign matter from the fœtus by the mother, or rather experiment has seemed to show that there was no such absorption. Mr. Savory, however, has set the question at rest, and experimental proof is no longer wanting of the direct and rapid transmission of matter from the fœtus to the mother through the blood in the placenta.

We select three experiments as fair examples of the rest.

"Experiment III.—A cat, far advanced in pregnancy, was rendered insensible by chloroform. The abdomen was opened and the uterus exposed. It was divided at a part to which a placenta was not attached, and a vigorous fœtus extracted in its membranes, which were removed from it. It was supported on a napkin, and into the abdominal cavity about ten minims of the solution were injected. The portion of integument around the puncture was then carefully pinched up and secured by a ligature, so as to prevent the possibility of any escape of the solution. A second fœtus was then extracted and treated exactly in the same manner. Both, with the portion of the uterus, were then returned into the abdomen, which was closed with sutures.

"For ten minutes from the period of the first injection the cat lay on her side breathing tranquilly. Then slight spasms ensued in the hinder extremities; these gradually increased, and at length passed into violent and general ones. In seven minutes more the cat was dead.

"The abdomen was then re-opened, and the ligatures placed upon the punctures in the fœtus were found still perfectly secure. Both the injected fœtuses were yet alive. Within a few minutes after they were injected they exhibited

decided spasms, and these continued, for a long period after the death of the mother, frequently to recur. The other fetuses were not affected.

"In the next experiment, the fetuses, after being injected, were not returned into the abdomen.

"Experiment IV.—A pregnant rabbit, within a day or two of her full term, was rendered insensible by chloroform, and the uterus was exposed by the usual longitudinal incision, and protruded considerably. It was carefully divided over a fetus, which was immediately expelled, and received on a napkin; remaining connected with the mother only by the cord. The point of the syringe was inserted through the abdominal wall, and about five minims of the solution were injected. None escaped. Five other fetuses—all but one—were removed and injected in a similar way; from five to ten minims of the solution being thrown into each. The punctures remained dry. In one case the cord gave way. The fetuses were all fully developed, and very vigorous. Almost immediately after the injection, decided tetanic spasms appeared in all, but each survived, and moved actively for some time after. None of the fetuses were replaced after injection; indeed, it would have been impossible to do so, owing to their size. They were allowed to lie outside the mother, and remained connected with her only by the umbilical cords.

"At the end of fifteen minutes from the time of the first injection decided tetanic spasms appeared in the mother, and, after repeated attacks, she died rigid in three or four minutes more. During the spasms of the mother, two or three of the placenta became detached.

"The following experiment is a still more striking one.

"Experiment V.—A large bitch, far advanced in pregnancy, was rendered insensible by chloroform. The uterus was exposed and opened to a small extent, at a spot as far as possible from the attachment of a placenta. Through this, by means of a very gentle pressure, a fetus, inclosed in its membranes, was readily expelled. The membranes were divided, and the fetus, now only connected by the cord, was placed in a large but shallow vessel of water, conveniently arranged, the temperature of which was about 100°—that is, as nearly as possible the temperature of the fluid in which it is naturally immersed. Into the abdominal cavity of the fetus, which was kept distant from the mother the entire length of the cord—some two or three inches—twenty minims of the solution (one grain of strychnia) were injected, the fetus being raised from the water for that purpose. In about two minutes, the fetus, which was vigorous and lively, exhibited decided spasms, and these continued to recur at frequent intervals.

"Another fetus, removed in the same manner, and placed in the same water, was similarly treated, and similarly affected. In about five or six minutes a ligature was placed on each cord, and the fetuses were separated, by dividing the cords on the fetal side of the ligature. Little or no blood escaped from them. Three other fetuses were subjected to the same process, and after a few minutes likewise removed. The quantity of the solution injected into each varied from twenty-five or thirty minims. Into one nearly forty minims were thrown. They all exhibited tetanic spasms, which in the majority continued, though feebly, after division of the cord. The protruded portions of the uterus, which still contained three or four fetuses, and such portions of the intestines as had escaped, could be only partially replaced, owing to the contracted state of the abdominal muscles.

"The mother continued to breathe placidly under the influence of chloroform for thirty minutes from the period of the first injection, and for fifteen minutes after the last fetus had been removed. At the end of that time very slight twitchings were visible: these became more and more marked, and passed at length into a decided spasm. The spasms, preceded by twitchings, gradually increased in intensity, occurring at intervals of about two minutes. For fifteen minutes I watched some six or seven, to remove any doubt of their character, and then as the effects of the chloroform were rapidly subsiding, I did not choose to prolong the experiment further, and the dog was killed.

"In this experiment, all direct contact between the injected fetuses and the mother was prevented. No communication whatever existed between the in-

jected foetus and its mother, except through the cord and placenta. It cannot be doubted that the poison passed from the blood of the foetus to the blood of the mother at the placenta."

History of two cases of Hernia of the Ovary, in one of which there was periodical Enlargement of this Organ. By Dr. OLDHAM, Obstetric Physician to Guy's Hospital. ("Proceedings of Royal Society," May, 1858.)

These cases are examples of a rare conformation of the female sexual organs, in which the ovaries had descended through the inguinal canal, and become permanently lodged in the upper part of the external labia. In both of them it was impossible to detect either uterus or vagina; and in the first there was a periodical increase of one or other of the ovaria, followed by its gradual reduction—a direct evidence of an ovarian menstrual act.

CASE 1.—The subject of this case applied to me in September, 1851, for advice on account of never having menstruated. She was nineteen years of age, of a tall figure, symmetrical frame, well-expanded pelvis, and womanly aspect, bearing all the marks of a full completion of the physical changes of puberty; and her general health, though not robust, was fairly good. She was one of a family of five children, and her sisters had menstruated between fifteen and sixteen years of age. The principal point which was elicited from her history in connection with her complaint was, that, eighteen months before, a swelling had somewhat suddenly appeared on the right side of the external organs, which had caused her some pain for a few days and had then disappeared. In four or five months a similar swelling again appeared, but was attended with so much suffering that a medical man was consulted, who took it for an abscess and ordered it to be poulticed. Again it passed away, again to recur at the end of two months; and so it had gone on at irregular intervals until the time of her seeing me, when the pain of a renewed attack of unusual severity had occasioned her some alarm. On examination, a swelling the size of a goose-egg was found to extend between the external abdominal ring and the centre of the labium on the right side, which was very tense and firm to the touch; and the cellular tissue, skin, and mucous membrane of the labium were oedematous and inflamed. It was painful, but by no means so painful as a labial abscess, which in its general aspect it resembled; and there was but little febrile disturbance. A more critical examination detected the presence of a solid body of an oval shape within the tissue of the labium, which proved to be the ovarium, whose enlargement had so compressed the surrounding tissues as to swell and inflame them. On the opposite side there was another oval body, the size of a walnut, which passed just beyond the outer ring, but readily slipped into the canal. This was the left ovary in a quiescent state. The external sexual parts were normally formed; but the ostium vaginæ was closed, a slight indentation in the median line alone marking its position. Frequent careful physical examinations failed to detect any trace of a vagina or uterus, and the conclusion arrived at was that these central pelvic organs had not been developed. The mammary glands were fully formed.

I have had repeated opportunities during the six years which have intervened since first the case came before me, of examining the organs both during the periods of ovarian excitement and during the intervals. For nearly two years, however, I completely lost sight of her, when I learned to my amazement, that in spite of my strong admonition both to her mother and herself that she should lead a single life, she had married. For some time past I have seen her more frequently, and have watched the recurrence of the ovarian swellings.

For the first three years the right ovarium was exclusively enlarged, and the intervals were not so regularly marked, varying between three and six weeks: excepting for the first year, when they were much longer, occasionally extending to three months. For the last two years the left ovarium has been far more frequently affected, the right remaining quiescent; occasionally both are painful and tumid, but even then one more than the other. The

intervals are now pretty regularly three weeks. The acute inflammatory symptoms which accompanied the onset of these swellings have long since ceased to recur, which is obviously due to the loose state of the tissues from repeated stretching, so that the swollen organ is no longer compressed.

The accession of a menstrual time is sometimes suddenly felt. She will go to bed well, and in the morning the ovary will be swollen: more commonly, however, it is very gradual, augmenting in volume for four days, then remaining stationary for three days, and then gradually declining; the whole process, before the ovary is reduced, generally lasting ten or twelve days. On separating the ovary, when at its height of swelling, from the tissues surrounding it, it appears scarcely, if at all, less than double its usual volume; its outline is clearly defined, and it is plain that the whole, and not merely a part of the organ, is involved. There is no suffering worthy of notice during the time; the swelling is tender if pressed; and tender, too, in the act of sitting down or rising up; but she walks about as usual without distress, and there is but little lumbar or hypogastric pain. Neither are there any manifest sympathies excited, either of the mammary glands or other organs. Nor is there any vicarious flux, either of blood or any secretion, with the exception of an excess of saliva, but this is not in any large flow. The ovary alone appeared to be engaged in this periodical act, which it is not too much to suppose, in accordance with modern physiological views, would have been attended with a flux of blood, had not the organs which normally supply it been absent.

But while this may be said to represent the usual course of a period, yet the volume of the ovary, and the length of time it remains swollen, is subject to occasional variation; sometimes being much less tumid, and dying away in a shorter time.

The repeated attempts at sexual union have only had the effect of somewhat loosening the tissues around the vulva, but the vagina remains imperforate as before, and is beyond the reach of surgical remedy. It may be added, that the subject of this history recognizes an increase of sexual feeling at and soon after the periods of enlargement of the ovary.

CASE 2.—This case was that of a young woman who had attained the age of twenty without having menstruated. She was a tall, strumous-looking person, in weak health. There had not been any well-marked efforts at menstruation, but she had suffered slightly from lumbar pain. The mammae were well developed. The pelvis was fairly formed. On examination I found the two ovaria just appearing beyond the external abdominal rings, and readily returning by pressure into their respective inguinal canals. They were of equal size and similar shape, being ovoid bodies about the size of small chestnuts. They were not tender when touched, although organically sensitive, and she had never experienced pain in them. The external sexual organs were somewhat less perfectly developed than usual; the vaginal orifice was closed, and no trace of a canal or uterus could be detected by exploration with a catheter in the bladder and the finger in the rectum. These organs, as in the former case, were absent. During the time I saw the patient, which was only for two months, the ovaria did not enlarge, although her general health improved.

On the Immediate Principles of Human Excrements in the Healthy State. By Dr. MARCET, Assistant-Physician to the Westminster Hospital. ("Proceedings of Royal Society," 1858.)

The new results obtained by Dr. Marcet are the following:—

"1. *Margarate of lime, phosphate of lime, and margarate of magnesia*, are discovered to be immediate principles of human evacuations.

"2. I find a new method for obtaining excretine, and its chemical formula has been established.

"3. The fact that vegetable food induces the presence of margaric acid in excrements has been confirmed.

"4. The existence of a comparatively large quantity of cholesterine in the spleen, which I had mentioned before as probable, has been confirmed.

"When human feces are exhausted with boiling alcohol, the fluid being

rapidly strained through a cloth, a clear extract is obtained, which, in cooling, yields a deposit; this substance being collected on a filter, is partly soluble in boiling alcohol, and there remains undissolved a residue insoluble in ether and alcohol. The residue in question being boiled with a solution of potash, dissolves almost entirely, and the addition of hydrochloric acid induces the formation of a precipitate in the solution. On examining this precipitate, it was found to consist of a crystallizable substance, fusing at 60° cent.; its structure and other properties were precisely those of *margaric acid*.

"The acid filtrate contained *phosphoric acid* and *lime*. From several quantitative analyses, I concluded that there was more lime than is required to combine with the phosphoric acid in the form of the neutral phosphate, the excess of lime being exactly that which was necessary to convert the margaric acid into a neutral margarate of lime, $C_{34}H_{33} + O_3CaO$. Consequently it followed that the three substances existed in the form of *margarate of lime* and *phosphate of lime* as immediate principles of human feces.

"The alcoholic filtrate from the deposit being allowed to stand for twenty-four hours, deposited another substance, of a nearly white appearance, and which proved to be *margarate of magnesia*.

"The peculiar action of a vegetable diet on human feces was investigated by means of experiments undertaken upon myself, when I observed that an entirely vegetable diet was attended with the formation of a large quantity of margaric acid in the excrements—most probably not in the form of a margarate, but in the free state, inasmuch as it was obtained from the decomposition, with hydrochloric acid, of the precipitate induced by adding milk of lime to the cold and clear alcoholic extract of feces, after the separation of the above-described deposits.

"In the month of December, 1855, I had an opportunity of noticing that during a cold night, when the temperature falls below the freezing point, *exeretine* crystallizes readily and in large quantity in the clear alcoholic extract of feces; this method I employed as often as possible, to prepare enough *exeretine* for its chemical analysis; but the cold weather not lasting long enough, and this season having been remarkably mild, I was compelled to adopt a modification of the process by milk of lime, described in my former communication.

"Having prepared a sufficient quantity of *exeretine*, partly by the action of cold, and partly by means of milk of lime, the chemical composition of this substance was now determined. A qualitative analysis showed it to consist of carbon, hydrogen, sulphur, and oxygen; there was no water of crystallization present. Oxide of copper was employed at first for the combustion, but they were subsequently undertaken with chromate of lead, on account of the large proportion of carbon that *exeretine* contains; no substance having been found to combine with it, its atomic composition was calculated from the assumption that one equivalent contained one equivalent of sulphur; and the following formula was obtained:—

78 eq. carbon	468
78 eq. hydrogen	78
1 eq. sulphur	16
2 eq. oxygen	16
<hr/>	

Atomic weight of *exeretine* 578

"In my former communication I had stated that when the tissue of the spleen is submitted to a process of analysis similar to that adopted for the extraction of *exeretine*, a substance closely allied to *cholesterine* is obtained. This subject being one of great importance in a physiological point of view, I have resumed the investigation, and placed beyond doubt that this substance is really *cholesterine*. Its presence in the spleen is evidently independent of that which might exist in the blood retained by this organ after death. Is it that the spleen secretes *cholesterine*? This can only be determined by actual experiment; but it is very remarkable that a part of the blood which is supplied to the liver should come directly from an organ containing large quantities of a substance known to enter into the composition of the bile."

V.

REPORT ON MATERIA MEDICA AND THERAPEUTICS.

On Transfusion of Blood in the Horse in Diseases attended with low Vital Action.
By MR. JAMES FARRALL, Veterinary Surgeon to the Lord Lieutenant of Ireland.
("Dublin Quarterly Journal of Medicine," Feb., 1858.)

MR. FARRALL'S remarks are of considerable interest, not only as affording additional evidence in favor of a very important but much neglected mode of treatment, but also as containing the description of a new mode of performing the operation—a mode which may supersede the syringe altogether.

"During the autumn of 1856 and spring of 1857," says Mr. Farrall, "an epidemic prevailed in and about Dublin, indeed, I believe, all over Ireland, to a greater or less extent, which at its outset presented the leading features of influenza, but of a low typhoid character; it was much more prevalent along the eastern coast than on the western or in the midland counties. In Dublin it was very fatal, and in most of the cases which I was called on to see, I found intense debility, which in some instances had come on within a few hours after the disease had first manifested itself. Horses were seen to eat their food in the morning with every appearance of health and good spirits, and before evening they were found resting against the side of their stables for support; so rapidly had debility followed the first symptoms of the disease.

"With all these cases the principal difficulty was to support the strength, watching at the same time closely the symptoms which manifested themselves as the case progressed. Sometimes the urinary organs became affected, and repeated evacuations caused the patient to sink rapidly. In others the bowels were involved, and to such an extent as to resemble bad cases of cholera in the human subject; but the worst forms of this disease that I witnessed were those in which the animals had been bled previously to my having seen them. With those cases which had not been bled, I had, in treating them, an average amount of success; but in most of those that had, I am bound to admit I was by no means so fortunate. I found that everything I could do to restore the vital powers was, in the majority of cases, useless, and, save in the instance of a few young, vigorous horses, collapse set in within a few hours after the abstraction of the blood.

"I gave a fair trial to all the usual remedies. In cases where influenza had assumed a typhoid form, and in which the leading symptoms were a feeble, thready pulse, quick and labored breathing, cold extremities, clammy mouth, drooping eyelids, utter prostration of strength, and, in short, the usual symptoms of collapse, especially such as had been reduced to this state by loss of blood or by excessive purgation, I was generally successful. Discouraged by repeated failures, I determined to try the effect of 'transfusion,' believing it to be a not unnatural restorative, especially in cases where the improper abstraction of blood had superinduced the symptoms above alluded to.

"To enable me, therefore, to give this operation a fair trial, I commenced a series of experiments, so as to discover the simplest, safest, and most effectual method of conveying blood from one animal into another. I first tried the transfusion syringe, which has been used by medical practitioners for this purpose; but, whether from want of skill in its use, or from defect in the instrument, which had been recommended to me as one of the best, or from some other cause, I cannot tell, but certain it is, I was in no case as successful with

it as I was with a more simple apparatus. I fancied that the blood lost much of its vitality by being exposed to atmospheric air, and also by its being forced and compressed within the cylinder of the instrument. These impressions as to the cause of failure induced me to undertake several experiments with a view to the construction of an instrument which would fulfil the requisite indications, viz., to allow the blood to pass freely from the vein of the healthy into that of the diseased subject without coming in contact with the atmospheric air, and without alteration of its temperature. I at length adopted an exceedingly simple apparatus, which I can describe in a few words. It consists of an India-rubber tube of some two and a half feet long and three-eighths of an inch in diameter, that is, about the caliber of the vein in the adult horse. This must first be turned inside out and carefully cleansed of all sulphur, arsenic, or other matter used in vulcanizing. To either end of this I fitted a silver tube, curved somewhat like a syphon, so that the end, which is slightly rounded at the point, might be passed easily into the vein, both tubes being exactly the same. A narrow zinc or tin trough is required to contain hot water, in which two-thirds of the tube should be immersed during the time that the blood is flowing. This completes the apparatus, and, being prepared, and the horses ready, held by assistants, the jugular vein of the healthy horse, from which the supply is to be taken, is to be opened, and into it one of the silver tubes to be carefully passed, point upwards, so as to receive the current of blood as it flows back from the head; the operator holding the other end, and, having previously opened the corresponding vein in the patient, he should wait till the current is passing freely down the tube from the healthy horse, and then bring it in contact with that which is now flowing slowly from the patient; he should pass the end of the tube carefully into the vein, point downwards, by which means the possibility of any air getting into the tube is avoided. The quantity to be transfused is readily ascertained by watching the expression of the eyes, and noting the pulse carefully. So long as there is no dilatation of the pupils, and so long as the heart's action is not very much affected, the blood may be allowed to flow on uninterruptedly, but as soon as the pupils become dilated, it is necessary to lessen the supply gradually, by compressing the tube with the finger and thumb. If the dilatation disappear after a minute or two, the blood may be again allowed to flow, but if the dilatation increase, you must stop, or otherwise injurious consequences will result. In the cases of two animals which I purchased for the purpose of experiment, I purposely let the blood flow after the dilatation of the pupil had manifested itself, in order that I might see the result, and I found that the dilatation of the pupil increased; and in one of the cases, after winking both eyes three or four times in rapid succession, the horse reared up and fell back. In the other case, I forced the blood in from an India-rubber enema bottle; the pupils first become still more dilated, the breathing very quick and difficult, and the eyes assumed a wild, agonized look, and the animal, with a sudden bound forward, fell dead. I had my finger on the artery during the entire time, and observed a great unsteadiness and fluttering of the pulse, which increased in frequency until the instant before he fell. In the first of these cases I did not force the blood into the vein, but allowed it to flow until I perceived the injurious effects on the horse; he tottered and fell, but in a short time recovered, and was walked back to his stable; he died in the course of the night, and on examining his head, I found considerable congestion of the brain. The tube which I used will transfer about three quarts of blood in eight minutes; at least I judge so from the fact that when used as a syphon it will pass three and a half quarts of water, and a little less of oil from one vessel to another in that time.

"In one of my successful cases, phlebitis supervened both in the healthy and diseased horse. I think I am correct in saying that this disease is by no means so likely to occur in horses as in human beings, and is certainly not so formidable; but, nevertheless, I am quite sure that it may happen as a consequence of the operation if the instrument be not kept scrupulously clean, and also if great care be not taken in its introduction into the vein. Having, from these and other experiments, not necessary to detail, determined on the mode of operating most likely to be successful, I shall now proceed to state the result

of four cases in which I have operated, and which I think I may look upon as having been followed with entire success. In three of the cases the patients had been bled a short time previous to my having seen them, and were so much weakened that they could scarcely walk. In the fourth case a drastic purgative had been administered, causing super-purgation and great prostration of strength. In each of the four cases the condition of the patient was so similar that the description I have already given may answer for all. Having selected a healthy young horse from which to obtain the blood to be transfused, I opened the jugular vein in the patient and in the healthy subject, and having inserted the tube, as before described, into the vein of the healthy horse, I placed the India-rubber tube in the tin trough containing the hot water to maintain its temperature, and the other curved tube into the descending portion of the vein in the patient. As soon as the current from the healthy horse had completely expelled all atmospheric air, the instrument being thus arranged, the blood flowed freely from the vein of one horse into that of the other in an unbroken current. The average quantity of blood transferred in each of these cases was about three quarts. I observed no particular symptoms to follow from the transfusion until two quarts or more had passed from the healthy to the diseased subject; but as soon as about this quantity had flowed into the diseased subject, there appeared to be produced an amount of stimulation, indicated by an increased action of the heart; at the same time the pupils began to dilate, and the countenance evinced an anxious expression. My former experiments led me to watch with great care the progressive dilatation of the pupil, and I deemed it expedient in each case, when this symptom was well developed, to compress the tube so as to diminish the current and allow the transfusion to proceed more gradually and slowly. Occasionally I almost completely interrupted the current until the subsidence of this symptom, and I found that when about three quarts had been transfused, any additional quantity was followed by unpleasant symptoms, which indicated the necessity of stopping the operation. On removing the tube and closing the vein, all symptoms of irritation gradually subsided, and the pulse, from being rapid and irritable, became slower, stronger, and fuller, gradually approaching the healthy standard.

"In each of these four cases the reaction was steady and progressive. The natural warmth of the extremities was gradually restored, and in the course of ten or twelve hours the patients presented other equally unmistakable symptoms of amendment, such as returning appetite, more quiet and steady respiration, cheerfulness of countenance, and a willingness to move about. From this point there was a gradual improvement, and in a short time they were pronounced cured."

On the Toxic and Medicinal Properties of the Nitrate of the Oxide of Glycyl (Nitro-Glycerine, or Glonoine). By (1) Mr. FIELD, late Demonstrator of Anatomy at St. George's Hospital Medical School; (2) Dr. FULLER, Physician to St. George's Hospital; and (3) Dr. HARLEY, Professor of Practical Physiology at University College.

"1. In the evening of February 3d, 1858," writes Mr. Field, "I was conversing with a homoeopathic practitioner, when he mentioned a medicine which possessed peculiar and extraordinary qualities, some of which he described as having affected himself, though he had taken it in very minute quantities. I laughed at his credulity, and offered to take as much as he pleased, upon which he let two drops of what he called the first dilution of glonoine fall on my tongue. After swallowing this small quantity of fluid—I was assured the quantity did not exceed two drops—I asked what effects I must expect, but was told to wait and observe for myself. I then purposely conversed on other subjects. In about three minutes I experienced a sensation of fullness in both sides of the neck, to this succeeded nausea, and I said, 'I shall be sick.' The next sensation of which I was conscious was as if some of the same fluid was being poured down my throat, and then succeeded a few moments of uncertainty as to where I was, during which there was a loud rushing noise in my ears, like steam passing out of a tea-kettle, and a feeling of constriction around the

lower part of my neck as if my coat were buttoned too tightly; my forehead was wet with perspiration, and I yawned frequently. My intellects returned, however, almost immediately, and I remember saying, 'This has nothing to do with homœopathy, but it has to do with a very powerful poison; there are more things in heaven and earth than are dreamt of in the philosophy of some of us.' I also reproached my friend for not having tested the anæsthetic power of the medicine, by inflicting a slight wound on me. I need scarcely say I am thus minute in my description of what occurred, that an accurate idea may be conveyed of the actual effect produced on me, as well as to justify the uses to which I have since put the medicine. When these sensations had passed off, which they did in a minute or so, they were succeeded by a slight headache, and dull heavy pain in the stomach, with a decided feeling of sickness, though without any apprehension that it would amount to vomiting. I lay on a sofa, feeling rather languid, but talking cheerfully, conscious at the same time that I could very well exert myself both mentally and physically, if I liked, but that it was more pleasant to be idle. This condition lasted about half an hour, at the end of which I was quite well, and walked home, a distance of half a mile, with perfect comfort. I slept soundly from one o'clock till six, when I was called up, having a slight amount of general headache, but not such as I should have regarded but for the recollection of last night's adventure.

"The physician to whom I am indebted for this overdose told me, that when his first impression that I was shamming had passed off, my condition caused him the greatest alarm, for he really thought he had killed me. I learn from him that my head fell back, my jaw dropped, I was perfectly white, breathing stertorous, and no pulse at the wrist for the space of about two minutes. He immediately rushed to a closet, and procured some stimulant, which he poured down my throat. I had never been in better health and spirits than on the day of this occurrence, and had taken nothing for hours but a little cold tea.

"This same first dilution of glonoine consists of one drop of a peculiar chemical compound, dissolved in ninety-nine drops of rectified spirit; and glonoine itself I learn to be a nitrate of oxyde of glycy, prepared by adding nitric and sulphuric acids to glycerine, the temperature of the fluids being kept down by a freezing mixture.

"My own personal experience of the very marked and peculiar effects produced by this drug made me anxious to test its qualities still further. As a direct sedative to the nervous system, without possessing any stimulating or permanently depressing qualities, without affecting secretion, together with its power of subduing muscular action, it appeared to promise to become an invaluable agent in the treatment of a large class of nervous and spasmodic diseases. By a strange perversion of all reason, as it appears to me, my friend, who is an enthusiastic disciple of Hahnemann, began to rejoice, when all appearance of danger had passed, that he had discovered what he considered a splendid remedy for apoplexy, on the principle of *similia similibus curantur*. I leave him to the enjoyment of his opinions, feeling only grateful that he did not give me a second dose to cure me on a like principle, while I consider the best mode of applying the drug in a precisely opposite direction. With this object I procured some of the first dilution of glonoine from a homœopathic chemist, and proceeded to institute a series of experiments before applying it to the treatment of disease.

"Anxious to inform myself on the effects of a smaller dose, I got a medical friend to join me. We each touched our tongue with the cork moistened with glonoine solution, and recorded the sensations produced by it. They were nearly as possible identical—a sense of constriction of the neck, slight nausea, with fulness, and some pain in the head, as if the brain were expanding. But I think my friend must have experienced more decided effects than I did, for he declared that he would never take any more. The sensations lasted about five minutes, and then passed off without leaving any unpleasant effects.

"Animals, as far as my experiments have extended, appear to be almost unaffected by this drug, which acts so powerfully on the human organization.

"I have repeatedly given it to cats, rabbits, and other animals in doses varying from two to thirty drops without producing any immediate effect. One

rabbit had diarrhoea an hour after, and the cats appeared cold and lazy all the next day. Some smaller animals, such as mice and pigeons, died after having taken the glonoine some hours, but they appeared to have suffered from alcoholic poisoning rather than from any symptoms at all resembling those produced by the glonoine on the human subject.

"Disappointed in my endeavors to gain any information from experiments on animals, I still thought I had seen and felt enough of the physiological action of the medicine to justify my cautiously employing it in the treatment of disease."

CASE 1.—Mrs. L——, æt. 68, had for some days been under treatment on account of a very painful nervous affection, which she designates spasms. This recurred regularly every three hours, and is described by herself and her attendants as most distressing, and my own observation of one or two seizures fully bears out their statements. Each attack commenced suddenly with intense pain in the epigastrium, extending up to the top of the chest, and then down the inner side of the left arm; it lasted about half an hour, and then subsided, leaving her exhausted, but otherwise well in the intervals. They recurred during the night with equal regularity. She was at the same time the subject of uterine derangement. Fetid ammonia, assafœtida, chloroform, valerian, hyoscyamus, camphor, and prussic acid, with counter-irritation, having failed to give her relief, I had recourse to morphia every two hours, which relieved her only after several doses had been taken, and partial narcotism had been produced. She would then enjoy a few hours' peace; but the attacks always returned when the influence of the morphia had passed off.

Feb. 5th.—She had slept well all night from the morphia which had been taken in the previous twenty-four hours, and was awoke in the morning of this day by one of her painful attacks; but it yielded in three minutes to a quarter of a drop of the solution of glonoine in a dessert-spoonful of water. After this she had four more attacks before noon. For three attacks she took the same medicine, and was quickly relieved; but having exhausted her supply when the fourth occurred, she suffered as much as on former occasions.

My daily notes of this case are nearly a repetition of what I have just stated, till the evening of the 10th, when she appears to have taken an overdose, which produced effects very similar to those from which I suffered on the 3d. This gave rise to so much alarm, that she refused to take any more. I therefore again had recourse to the morphia; but she suffered so severely the next day and night, that she begged to be supplied with the glonoine again, and no sooner had she taken it than relief was obtained. The dose has been continued every four hours with the happiest results. Her attacks now are reduced to two or three in the twenty-four hours, and always readily yield to the quarter of a drop of solution of glonoine. The only other treatment she has required has been a few ten-drop doses of the tincture of cannabis indicus, to relieve uterine hemorrhage.

CASE 2.—Mrs. W—— had suffered severe pain from a decayed tooth for several hours. The pain was so great that she would gladly have had it extracted; but her dentist was anxious to preserve it. In the evening she begged me to give her something, for she said, "It cannot be made worse." I placed about half a drop of the solution of glonoine (1 per cent.) on her tongue. Soon after, she experienced a pulsation in the neck, fullness in the head, throbbing in the temples, and slight nausea. The toothache subsided, and she became partially insensible, disliking very much to be roused. When fully sensible she had headache, but the toothache was gone. Mrs. W. remarked, "Certainly that medicine allays pain wonderfully." She slept unusually well that night, and experienced no ill effects in the morning.

CASE 3.—Elizabeth M——, a stout, healthy young woman, had severe toothache. I was applying a very small piece of lint dipped in glonoine solution (1 per cent.), when it accidentally fell into her mouth and was swallowed. In about five minutes, after feeling giddy and sick with headache, she became insensible. Her countenance, naturally florid, was unaltered, breathing tranquil, pulse full, and rather quickened. Knowing, as I did, that she had taken but a small quantity of the drug, I kept my finger on her pulse, and allowed

myself time carefully to observe her condition before applying a restorative. I tested her sensibility to pain, and called loudly to her, but without producing any impression. Directly I detected a slight failure in the pulse, in about three minutes after insensibility commenced, she had some stimulant poured down her throat, when she quickly recovered. Some headache was complained of, but the toothache was cured. The next morning she was quite well.

CASE 4.—Mrs. R—, æt. 45, pale, anæmic, with feeble circulation, has for the last month suffered from headache, daily increasing in severity. When I first saw her, February 15th, she had had leeches applied to the temples, and had taken drastic purgatives, since which the pain had been much worse, and she could not sleep. I gave her a quarter drop of glonoine solution in colored water every four hours. On seeing her the next day, she expressed the greatest gratitude for the relief the medicine had afforded her, and she said her head was much better after taking the first dose, and she slept four hours. The glonoine was of course given only as a palliative in this case, while iron and generous diet were relied on as a means of effecting a cure.

"I have not yet met with one well-defined case of neuralgic or spasmodic disease in which this medicine has failed to afford relief. No vague, over-sanguine expectations are entertained of its power to cure disease where spasm or pain are but symptoms, excepting only in those cases where these consequences themselves become the cause of death, their cause being of a transient nature, and liable to subside if the patient's life can be maintained for a certain time, such as temporary irritation of a nervous centre, or inflammation of such a part, which terminate in resolution or be subdued by remedies, if existence were prolonged sufficiently for their action; and also in cases where we may suppose symptoms such as spasm may react on their exciting cause, preventing the necessary tranquillity for recovery, the offspring, as it were, maintaining its parent. With such a remedy may we not look forward hopefully to the treatment of tetanus, hydrophobia, and other similar diseases?"

2. Dr. Fuller's investigations were undertaken in conjunction with Dr. Harley.

"Our experiments," says Dr. Fuller, "commenced at 12.45 P. M., 20th March, 1858, at which time my pulse was 80, and my respirations were eighteen in a minute. I began by taking two drops of a solution containing 1 drop of pure glonoine in 99 of rectified spirit—the solution employed by Mr. Field. It was sweet to the taste and warm, and imparted a flavor or odor somewhat resembling chloric ether. In the course of a minute I felt, or fancied that I felt, some fulness in the head, but was not conscious of any other unusual sensation. At 1.4 o'clock I took two drops of the solution obtained from Morson's, or in other words, one-sixth of a drop of pure glonoine, which is equal to 17 drops of the solution spoken of by Mr. Field. It was very sweet, and pungently hot to the tongue and throat, giving rise to a burning sensation which lasted several minutes. At 1.6 o'clock my pulse had risen to 96, and I felt, or fancied that I felt, increased fulness about the head, but without giddiness or confusion of thought. My pupils were not affected, and I did not experience any unusual sensation beyond that just referred to. At 1.15 o'clock I took 4 more drops of Morson's solution, or in other words, one-third of a drop of pure glonoine, which is equivalent to 33 $\frac{1}{3}$ drops of Mr. Field's solution. At 1.18 o'clock my pulse was still 96; my respiration remained tranquil; my pupils were unaffected, and I was not conscious of any unusual sensation, except a sense of slight fulness in the head. As no further symptoms occurred, at 1.30 o'clock I swallowed six drops of Morson's solution, or in other words, half a drop of pure glonoine, which is equivalent to fifty drops of Mr. Field's solution. It was intensely hot to the mouth and gullet, rendering it necessary for me to swallow half a glass of water. I felt somewhat nervous; and for a few moments the surface of my body became covered with a clammy perspiration; my pulse intermitted occasionally, and I experienced, or fancied that I did so, an increase of fulness about the head; but my pupils remained unaltered, and in no other respect did I perceive any difference from the effects produced by the former and smaller doses. In a few minutes the nervousness passed off, and at 1.35 o'clock my pulse was 90, and regular. At 1.40 o'clock my pulse

was 86, and my respirations were sixteen in a minute. At 1.50 o'clock my pulse had fallen to 80, or the standard at which it was found before the commencement of the experiments.

"Thus within the space of one hour I took rather more than one drop of pure glonoine, which is the amount contained in eighty drops of the solution spoken of by Mr. Field. This would appear conclusive as to the fact that whether in weak solution (1 in 100) as employed by the homœopathsists, or in a strong solution (1 in 6) glonoine does not produce the effects which have been ascribed to it; and that, contrary to what has been stated by Gmelin and implied by Mr. Field in his recent communication, it may be taken with impunity in considerable quantity. Whether the acceleration of the pulse which was observed in the first instance was attributable to the effect of glonoine, is a question which requires further experiments to determine. My own impression is, that it was purely the effect of the nervousness or excitement resulting from the experiments in which we were engaged, for had it been otherwise it is not probable that the pulse would have fallen to its natural standard within so short a period after taking the larger doses. The fulness in the head may have been attributable in part to the same cause, but some discomfort about the head, not amounting to headache, continued for several hours afterwards, and I cannot help thinking that it is fairly referable to the effect of the glonoine I had taken. I will only add, that for some weeks I had been suffering from slight bronchial irritation, with frequent expectoration of thick mucus, and that since I swallowed the glonoine I have not had occasion to cough or expectorate."

3. The glonoine used by Dr. Harley was procured at a homœopathic pharmacy, and of the same strength as that used by Mr. Field.

"I began," he says, "by touching my tongue with the cork moistened with the solution; but experiencing no effect beyond that which usually follows the application of alcohol or ether to the tongue, I boldly put a couple of drops in my mouth. At first I felt a kind of sweet and burning sensation, and soon after a sense of fulness in the head, and slight tightness about the throat, without, however, any nausea or faintness. After waiting a minute or two these effects went off, and I could not help thinking that they were partially due to imagination. Determined to give the thing a fair chance, I swallowed five drops more, and as these did not cause any increased uneasiness, I took, in the course of a few minutes, other ten drops of the solution. Being at the time quite alone, I became somewhat alarmed lest I should have taken an over-dose, and very soon my pulse rose to above 100 in the minute. The fulness in the head, and constriction in the throat, I thought was more marked than after the previous dose. In a minute or two, however, my courage returned, and the pulse soon fell to 90. The fulness in the head lasted some time, and was followed by a slight headache. Next day I repeated the experiment upon myself by taking ten-drop doses, and finding no bad effects to result from them, I tried the substance on some of my friends, without saying what sensations might be expected to arise from it: and I may cite the following as a good example of an experiment unaffected by imagination:—

"To Dr. von F., a strong, healthy gentleman, aged twenty-six, respirations twenty-eight, and pulse eighty-four in the minute, I gave ten drops of the solution. After waiting five minutes without witnessing any effect, I administered other eighteen drops of the glonoine in a little water. In about a quarter of an hour the pulse was noticed to be slower; this, however, was, no doubt caused by him sitting quite still. The respirations remained as before, and neither fulness in the head, nor constriction in the throat was complained of. Upon the tongue of another gentleman (a medical man), who was equally ignorant of the contents of Mr. Field's communication, I allowed two drops of glonoine to fall; after waiting five minutes without any peculiar sensation being felt, I gave him eighteen drops of the solution, and in five minutes more, as there was still not the slightest effect observable, I again gave him other eighteen drops. The pulse and respirations were carefully watched during a quarter of an hour longer; but as absolutely nothing was either felt or observed, my friend went home. Having been thus unsuccessful in obtaining any decided effects from

the employment of glonoine procured at the homœopathic pharmacy, I obtained some of the pure substance from Mr. Morson, in Southampton-row. While standing in Mr. Morson's shop I took by degrees a drop of the perfectly pure material, and found that, on bringing it in contact with the tongue, it at first gave rise to a sweet flavor, which was rapidly followed, however, by a most disagreeable, acrid, burning sensation. The latter lasted during several minutes. Immediately after I had taken the drop, which was equal to 100 drops of the solution previously employed, I felt my pulse, and found it 105 per minute. I imagined, too, that I felt fulness in the head, and some tightness about the throat; but as these effects gradually passed off in the course of a few minutes, I thought that they were most probably due to fear and imagination.

"On the 29th instant I made, in concert with Dr. Fuller of St. George's Hospital, some experiments with two different solutions of glonoine. One contained one drop of glonoine dissolved in ten of spirit; the other, one drop dissolved in six and three-quarters of spirit. As Dr. Fuller will, in a separate letter, describe the effects produced upon himself by glonoine, I shall limit my remarks to a description of my own sensations. At 12.45, my pulse being eighty, my respiration twenty-two per minute, I took of the solution, containing one part in six and three-quarters of spirit, a quantity equal to one-sixth of a drop of pure glonoine, which would be equal to sixteen and a half drops of the solution used by Mr. Field. At one o'clock my pulse had risen to ninety, but the respirations were about the same. I felt some fulness in the head, and slight tightness about the throat. At 1.5 I took one third of a drop (= thirty-three drops of Field's solution). In three minutes afterwards my pulse was ninety-eight. The other effects continued as before. At 1.16 I took another half-drop (= fifty drops of Field's solution), and in four minutes afterwards, my attention having been directed to another subject, my pulse had fallen to ninety-four. At 1.30 I took a whole drop of pure glonoine (= 100 drops of Field's solution), and in six minutes afterwards my pulse had gone up to 106 per minute. None of the other effects were increased. Ten minutes later, when I had become convinced that I ran no risk in thus rapidly augmenting the dose, my pulse fell to seventy-eight, while the respirations were eighteen per minute. I have, therefore, no hesitation in saying, that the effect upon the heart's action was entirely due to fear. The head and neck sensations, however, I think are too constant to be attributed to the same cause, although I have no doubt the imagination exaggerates them. During the three-quarters of an hour that this experiment lasted, I had taken altogether a quantity of glonoine equal to $199\frac{1}{4}$ drops of the solution used by Mr. Field, and of which two drops were sufficient to produce in him symptoms of narcotic poisoning.

"While Dr. Fuller was with me at University College, we gave in the course of fifteen minutes a quantity of an alcoholic solution of glonoine, equal to three drops of the pure substance, to a small sickly-looking rabbit. The animal was kept under observation for more than an hour without any effect being observed.

"To a frog we gave at 1.20 some of the solution equal to two-thirds of a drop of pure glonoine. At 1.34 he was noticed to be in a convulsion. This experiment, however, scarcely deserves to be mentioned, as it is impossible to say whether the alcohol or the glonoine induced the tetanic state.

"Through the kindness of Mr. Spencer Wells, who gave me a quantity of pure glonoine, prepared by Mr. Squire, I was enabled to perform the following experiments. To a middle-sized dog I gave fifteen drops of the undiluted substance, and in three minutes afterwards I gave him other ten drops—in all, a quantity represented by 2500 drops of the solution employed by Mr. Field, and although the animal was most carefully watched during a couple of hours, no effect was detected beyond what was produced in the mouth by the acidity of the drug.

"At 11.45 I put two drops of pure glonoine into the mouth of a frog. At 12.7 he was seized with convulsions. The fore-legs were firmly clasped on his breast, and the hind-legs were stretched straight out. The slightest touch or even blowing with the breath upon him was found sufficient to induce a spasm.

The tetanic state differed from that produced by strychnia, inasmuch as the spasms were of very short duration, almost instantaneous, and when the animal was left quiet recurred at regular intervals—eighteen in the minute. In about an hour and a half after the administration of the toxic substance, the frog was found flaccid, and nearly dead. When touched, however, slight spasm could still be induced.

"To another frog I gave three drops of pure glonoine, and in twelve minutes afterwards he was found convulsed. I watched him for nearly an hour, and he presented symptoms very similar to those already described as occurring in the previous case; the only difference being that he frequently croaked, and occasionally made a sort of screaming noise. I observed that the mucous membrane of the frog's mouth was somewhat inflamed by the drug.

"I may mention that the pure glonoine which Mr. Wells gave me, as well as that got at Morson's, is an oily-looking, pale yellowish colored liquid, soluble in alcohol and ether; and when first mixed with them yields a perfume similar to that arising from mellow apples. It is insoluble in water, in which it sinks to the bottom like chloroform. It has a sweet burning taste, is very slightly volatile, and inflammable.

"In conclusion, I have only to remark, that I have experimented upon ten different gentlemen, with glonoine obtained from four different sources, and that I have not seen any dangerous effects follow its employment when given in the before-mentioned doses; but if taken pure great caution should be used."

On the Influence of Liquor Potassæ and other Alkalies on the Therapeutic Properties of Henbane, Belladonna, and Stramonium. By A. B. GARROD, M. D., Professor of Materia Medica in the University College, London. ("Proceedings of Medical and Chirurgical Society, November 24, 1857.")

In this paper the author first alludes to the frequent exhibition of henbane with liquor potassæ, and brings forward many proofs that such combinations were often administered. He also states that the like mixtures are recommended by both medical and surgical authors. Dr. Garrod then proceeds to detail experiments, which demonstrate beyond doubt that the active principle of henbane is destroyed by liquor potassæ and other caustic alkalies; and that such a combination is inert, both when topically applied (as evidenced by the absence of power in causing dilatation of the pupil of the eye), and also when internally administered. Similar observations are next detailed upon the preparations of stramonium and belladonna, and the results are found to be the same. It is, however, shown that the carbonates and bicarbonates of the alkalies are devoid of the property of destroying the activity of the plants. In some of Dr. Garrod's experiments as much as a drachm of the extract of henbane and an ounce and a half of the tincture, were administered in combination with potash, without the production of the slightest symptom.

The results arrived at in the communication may be thus summed up:—

1st. Caustic alkalies, such as exist in liquor potassæ or liquor sodæ, entirely destroy the activity of henbane, preventing its action on the pupil when topically applied, and its influence upon the system when internally administered; and, combined with a proper amount of these alkalies, the largest doses of the preparations of henbane may be given without the production of any symptoms.

2dly. The same influence is exerted by the fixed caustic alkalies upon belladonna and stramonium.

3dly. The carbonates and bicarbonates of potash and soda produce no injurious effects upon the preparations of any of the three above named plants.

The deductions naturally to be drawn from these results are:—

a. That neither liquor potassæ nor any caustic fixed alkali should be prescribed with tincture or extract of henbane, as the virtues of the latter drug are thereby completely neutralized.

b. That when it is desirable to administer an alkaline remedy with henbane, either a carbonate or bicarbonate should be selected, which would probably be equally efficacious upon the stomach, if such influence be required, and cer-

tainly as efficient in altering the condition of the urine, and the mucous membrane of the urinary passages.

c. That the same precautions should be observed with regard to belladonna and stramonium, if at any time prescribed in conjunction with alkalies.

On Cannabis Indica as a Diuretic. By Dr. J. BRYAN. ("L'Union," 22, 1857, and Schmidt's "Jahrb." Bd. 94, No. 5, 1857.)

From a very short notice in our excellent German contemporary, it appears that Dr. Bryan has given the Indian hemp with evident advantage in one case of anasarca, and in two cases of general dropsy, the dose being twenty drops of the tincture every four hours. The effect was marked diuresis, with more or less diminution of the dropsical fulness. In the two cases of general dropsy, however, this marked effect was not produced until the kidney had been acted upon by other diuretics; and therefore it is to be inferred that the hemp acted by keeping up an action already begun. The collective effects of the remedy were—improvement of the appetite, relief of pain, and improvement of the spirits. Any more special action upon the nervous system (owing, probably, to the brunt of the action falling upon the kidneys) was absent.

On the Neem, or Margosa Tree. By Mr. WARING, of the Madras Medical Service. ("Indian Annals of Medical Science," April, 1857.)

The Neem, or Margosa tree, *Azadirachta Indica*, belongs to the Nat. Order, Meliaceæ; Linn. Syst., Decandria Monogynia; and is found more or less abundantly throughout the peninsula of India.

"All parts of the tree," says Mr. Waring, "are bitter, and nauseous to the taste; this is especially noticed in the bark, the bitterness being accompanied with some astringency, which is very permanent.

"For many centuries the Neem tree has been held in the highest esteem by the natives of India, who have applied every part of it to some medicinal use: thus the bark has been regarded as an excellent tonic and anti-periodic, the seeds and the oil obtained from the pericarp (pulp) as an anthelmintic, the bark of the root as an emmenagogue; the gum, which exudes plentifully, as an aphrodisiac; and the leaves, in the form of poultice, as a valuable local application to ulcers and cutaneous affections.

"The 'Taleef Shereef'" (p. 170) contains a very lengthened account of its virtues, of which I shall content myself with a brief summary, reserving a larger space for the consideration of its virtues as observed by European practitioners. The author of the 'Taleef Shereef' states, from personal experience, that it proves most useful exhibited internally in juram (elephantiasis?), white leprosy,† cutaneous eruptions, and scabies; and he quotes the case of a man, whose whole body was white from leprosy, who in forty days was cured by its use! To old and obstinate ulcers, and to fistula in ano, the local application of the leaves (a decoction of the leaves or of the bark being given internally at the same time) is highly spoken of. The leaves heated and applied to swellings and boils, in some cases resolved them, in others expedited suppuration, and in all were beneficial. The addition of salt was found to aid its efficacy. Fumigation with the decoction of the leaves proves useful, it is said, in the same way, and the water of this decoction is useful in cleansing foul ulcers, and removing pains (rheumatic) from the joints. A decoction of the bark of the root will restore suppressed menses, and if taken with goor (treacle) it will cause abortion. The seeds, bruised and applied to the head, will cure headache; their juice acts as a vermifuge; the juice of the leaf-buds introduced into the eye will cure night-blindness. Other minor virtues are enumerated, but it is not a little singular that no mention is made of the use of the bark in the treatment of fevers.

* "The Taleef Shereef Trans.," by George Playfair, Calcutta, 1833.

† Some information on the use of the Neem in leprosy will be found in Prof. Wilson's excellent paper on that disease, in the "Trans. Med. Phys. Soc. Calcutta," vol. i. p. 27, 216 N. W.

"Ainslie's account of the tree, excepting that he notices the alleged anti-periodic virtue of the bark, substantially agrees with the above; he adds a fact which I have not seen noticed elsewhere, that a sort of toddy is obtained from healthy young *margosa* trees, which is occasionally prescribed by the Vytians as a stomachic, in doses of an ounce and a half every morning.

"Merat and De Lens* mention this tree, but their account is a mere abstract of the statements of Ainslie."

The only part of the tree analyzed is the bark, and here a bitter principle, called *aradirine* by Mr. Piddington, and *margosine* by Dr. Cornish, has been isolated; but the analysis has not been repeated, and the principle has not been put to the test of practical experience.

The object of Mr. Waring's pages is to direct the attention of European practitioners to this subject, and urge them to try whether the supposed virtues are real or imaginary. At the same time, he refers to experiments already made, and more or less satisfactory—internally, in intermittent fevers, in hysteria, rheumatism, &c.; and externally, in ill-conditioned, obstinate, and sloughing ulcerations, in cutaneous affections, &c.

On the Physiological Effect of Alcohol and Tobacco. By Dr. WILLIAM A. HAMMOND, Assistant Surgeon U. S. Army. ("American Journal of Medical Science," October, 1856.)

In this paper Dr. Hammond gives the results of a careful series of experiments performed upon himself, in order to ascertain the action of alcohol and tobacco upon the system generally, and more especially upon the metamorphosis of tissue.

With respect to alcohol, Dr. Hammond says: "Upon consideration of the foregoing experiments collectively, I arrive at the conclusion that alcohol increases the weight of the body by retarding the metamorphosis of the old tissues, promoting the formation of new, and limiting the consumption of the fat. Viewed in detail, it is seen that, under the use of alcohol, the following effects constantly ensued: 1. The carbonic acid and aqueous vapor given off in respiration were lessened in quantity. 2. The amount of feces was diminished. 3. The quantity of urine was reduced. 4. The urea, chlorine, and phosphoric and sulphuric acids were diminished in amount. These effects occurring when the amount of food was below the quantity required to maintain the weight of the body under the mental and physical exercise taken, were productive of no deleterious results to the system. On the contrary, when the food was sufficient to balance the waste from the excretions, and still more when an excess of aliment over the demands of the organism was ingested, the healthy working of the system was disturbed, and actual disease almost induced. The use of alcohol, even in moderation, cannot therefore be either exclusively approved or condemned. . . . It has been assumed by several late writers that the primary action of alcohol is the retention in the blood of the products of metamorphosis. I am inclined to think this opinion erroneous, and that alcohol, instead of preventing the elimination of the decayed tissues, acts by preventing in a great measure their primary destruction.

Dr. Hammond's experiments with tobacco led him to conclude—1st. That tobacco does not materially affect the excretion of carbonic acid through the lungs. 2dly. It lessens the amount of aqueous vapor given off in respiration. 3dly. It diminishes the amount of feces. 4thly. It lessens the quantity of urine, and the amount of its urea and chlorine. 5thly. It increases the amount of free acid, uric acid, and phosphoric and sulphuric acids, eliminated through the kidneys. "Tobacco, when the food is sufficient to preserve the weight of the body, increases the weight; and when the food is not sufficient, and the body in consequence loses weight, tobacco restrains that loss. Unlike alcohol, this influence is unattended with any unpleasant effects upon the circulating system, though its action on the brain and nerves is not such as always to be desired. [Dr. Hammond is not an habitual smoker.] When used in greater

* "Dict. Mat. Med.," vol. iv. p. 209.

moderation than in these experiments, this influence would doubtless be greatly lessened."

On the Medicinal Use of Sugar. By Dr. F. J. BEHREND and Dr. SIEBER. "Journ. f. Kinderkr." 1, 2, 1857, and Schmidt's Jahrb. No. 4, 1857."

The authors recommend the medicinal use of sugar as a curative means of great value in diarrhoea and several other affections of children, and they relate two cases of diarrhoea—one in a child aged three years, and another in a child aged four years—in which half an ounce of powdered white sugar, given every hour, soon gave a favorable turn to symptoms of extreme gravity, which had long resisted all the ordinary means of cure. Other evidence is promised, and we wait for this before forming an opinion; but we are quite prepared to agree with the authors in thinking that there are many conditions of diarrhoea, particularly those in which there is a putrefactive tendency in the alvine secretions, where sugar will in all probability prove a most valuable remedy.

On the Absorption of Medicated Enemata. By M. BRIGUET. "Rév. de Thérap. Méd. Chir." (January 15, 1857.)

M. Brignet's memoir was read before the Parisian Academy of Medicine on the 30th of December, 1857. It relates chiefly to quinine and its salts, and the principal conclusions are the following:—

1. Enemata may readily be passed as far as the cæcum, i. e., to a quarter where the powers of absorption are very active.
2. The secretions of the large intestines exert no chemical influence over the substances injected, and nothing is absorbed which was not previously in a state of solution.
3. When a solution containing less than fifteen grains of quinine is injected, a little more than one-third of this quantity disappears by absorption.
4. When the dose of quinine is larger than fifteen grains, it is not well received, and not more than one-fifth or even one-sixth is absorbed.
5. It is very difficult to produce any cerebral symptoms by injecting quinine even in large quantity, and those symptoms are very slight.
6. Absorption is very slow in all cases, and an hour had elapsed before a trace even of the quinine had disappeared from the bowel. In very young people absorption is quicker than in adults. In very old persons there is scarcely even a trace of absorption.
7. In general, enemata containing more than thirty grains of quinine are presently expelled.

These conclusions, M. Brignet tells us, apply in a greater or less degree to all the medicinal substances employed as enemata.

On the Administration of Cod-Liver Oil, and Substances soluble in it, in Capsules.

By Mr. SPENCER WELLS, F. R. C. S. ("Medical Times and Gazette," December 5, 1857.)

"I have frequently found," says Mr. Wells, "after ordering cod-liver oil, that the patients have objected very much to its unpleasant flavor. In many cases they have been quite unable to overcome their repugnance to it. In other cases the nausea it has produced had led me to discontinue it. This has been still more often the case when giving quina, or iodide of iron dissolved in the oil. Yet the effects of these solutions, when borne, have been so very beneficial that I was most anxious to overcome the objections to their use on the score of flavor. Some months ago it struck me that there was no reason why the oil should not be taken in capsules like copaiba. I accordingly asked Mr. Bastick, the druggist in Brook-street, to whom we are indebted for our knowledge of the solubility of so many substances in cod-liver oil, to have some of the oil with quina put up by Messrs. Evans and Lescher in their membrane capsules, as I had found their copaiba capsules preferable to any others I ever tried. This was done at once, and Mr. Bastick has for some time past supplied many of my patients with membranous capsules containing cod-liver oil only

or holding in solution quina, the iodide of iron, and the biniodide of mercury. Each capsule contains twenty minims of the oil, and the dose of the quina or iodide may be varied. Patients who object very much to the oil, think nothing of taking three, or even half a dozen capsules three times a day.

"The combination of biniodide of mercury with cod-liver oil is particularly useful in some of the chronic syphilitic superficial diseases of the skin and mucous membranes. A tenth or twelfth of a grain with a drachm of the oil in three capsules three times a day, I have found to answer admirably in cases of chronic pityriasis and psoriasis, with superficial ulceration of the fauces. In some of the chronic joint affections of scrofulous subjects, the iodide of iron given in the same way, but in larger doses, is also very efficacious. When it is desired to give iron in the oil without iodine, and to give larger quantities, the wafer-paper so much used for taking the cubeb and copaiba paste answers extremely well. A paste may be made of the sesquioxide of iron—the so-called carbonate—by mixing up with it a sufficient quantity of the oil. A teaspoonful of this paste, enveloped in wetted wafer-paper, is swallowed without the least difficulty or unpleasantness by any one who can take a pill.

"In many cases of secondary syphilis in persons of broken-down constitution, it is desirable to combine the iodides of mercury and iron. In this combination the iodide of mercury becomes soluble, and it may be given either in the oil in capsules, or in the form of a very elegant syrup which Mr. Bastick prepares. In prescribing this, however, the ordinary dose of the iodide of mercury must be considerably lowered, as the action becomes much more powerful when the salt is made soluble. The syrup is prepared of various strengths; but in the proportion of a quarter of a grain of the iodide of mercury to two grains of the iodide of iron in a drachm of syrup, it will be found extremely useful, and not very disagreeable."

Some Remarks on the Physiological Action of the Tanghinia Venenifera. By Dr. KÖLLIKER, of Würzburg, and Dr. PELIKAN, of St. Petersburg. ("Proceedings of the Royal Society," March 16, 1858.)

The famous poison-tree of Madagascar was described for the first time by Aubert du Petit Thouars in his "*Genera Madagascariensia*," under the name of *Tanghinia venenifera*. At a later period, Sir W. Hooker published a good description, with a figure of this tree, named by him *Cerbera Tanghin* (see "*Botanical Magazine*," pl. 2968), so that nothing is wanted with regard to the botanical knowledge of this plant. On the other hand, the physiological effects of its poisonous parts have not been hitherto investigated. All we know is, that the fruit of the tanghinia is a strong poison, and is used in Madagascar as an ordeal poison in the most strange and revolting way. The only experiment on animals made by Ollivier, show that twelve grains kill a dog in some hours, but this experiment gave no further insight into the real action of the tanghinia.

The poison used by us was the alcoholic extract of the leaves and small stems of the tanghinia, prepared from dried specimens, which Professor Pelikan had received from Count Seydewitz, of Mecklenburg. About one centigram. of this extract was sufficient to show the full effect of the poison on frogs, when introduced into a wound of the back. It acted also when given by the mouth, but in this case a somewhat larger dose was required to produce a full effect.

The observed symptoms were the following:—

1. First of all, viz., in about five to fifteen minutes, the heart was affected and stopped in its action, in such a way that the ventricle became contracted and very small, whilst the auricles remained dilated, but were also paralyzed.
2. The voluntary and reflex movements were at first not at all affected, but some time—from half an hour to one hour—after the paralysis of the heart, they became weaker and weaker, and gradually ceased totally, without any sign of spasms or tetanus.
3. In the third place, the tanghinia has a great influence upon the voluntary muscles, which become paralyzed. This action begins very soon, and we have been able to show, with the aid of the *myographion* of Volkman, that as soon

as the heart is paralyzed, the muscles also begin to lose their force. Nevertheless, the total paralysis of these organs is not observed till after six hours and more, that is to say, when the muscles have been preserved in a temperature of 14° to 16° R. In a temperature of 4° to 6° R., the irritability of the poisoned muscles may last for double this time, as is usual with all poisoned muscles and nerves; but even in this case it disappears long before that of the non-affected muscles.

4. If muscles which have lost their irritability through the tanghinia are put into a solution of common salt of from $\frac{1}{2}$ to 1 per cent., their power of contraction reappears after a certain time, but only when they have been preserved at the lower temperature of 5° to 6° R.

5. Lastly, the *nerves* also are *paralyzed* by the tanghinia, and as far as we were able to pursue this question, under the same circumstances as the muscles, only perhaps a little earlier.

From all this it follows that the tanghinia is a *paralyzing*, and, above all, a *muscular poison*. As far as we have been able to follow its action, it resembles very much the *upas antiar*, only its power would seem to be a little less strong.

On the Preparation of Pepsine Lozenges. By M. BERTHE. ("Bulletin Général de Thérap.," July 15, 1857.)

M. Corvisart, who first applied pepsine to therapeutical purposes, recommends syrup of cherries as a suitable and pleasant vehicle; but unfortunately there is a reaction between the sugar and pepsine, by which in time a considerable portion of the former substance is converted into glucose and lactic acid. This has been found to be owing principally to the presence of water, and consequently M. Berthé proposes that the pepsine should be given in the dry form, as lozenges. The following is the mode of preparation he has adopted:—

A firm paste is made in the usual way, with mucilage of gum Arabic, and aromatized with a few drops of essence of lemon; when the mass is perfectly homogeneous, four grains of amylaceous pepsine are added for each lozenge; the mass is then divided in the ordinary manner, and the lozenges placed in a stove heated to from 77° to 86° Fahr.

Desiccation, under these circumstances, takes place very rapidly, and the lozenges obtained, which are very agreeable to the taste, do not attract moisture.

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Glasgow Medical Journal.
Indian Annals of Medical Science.
Journal of Psychological Medicine.
Lancet.
Liverpool Medico-Chirurgical Journal.
London Medical Examiner.
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Medical Times and Gazette.
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ABSTRACT OF THE MEDICAL SCIENCES,

&c. &c.

PART I.

PRACTICAL MEDICINE, PATHOLOGY, AND THERAPEUTICS.

SECT. I.—GENERAL QUESTIONS IN MEDICINE.

(A) HYGIENE.

ART. 1.—*An instance of the salutary effects of simple Sanitary Measures.*
By the REGISTRAR-GENERAL.

(Quarterly Return of the Registrar-General, Oct. 28th.)

"FOLLOWING the waters of the hills of Buckinghamshire down through the fens, we arrive at Ely. Here a remarkable example is found of the salutary effects of simple sanitary measures, of which every town in the kingdom may have the advantage. Ely stands, with its lofty cathedral, on one of the old fen islands. It is a small city of 6176 inhabitants (in 1851), and is in the neighborhood of the low lands, where the great systems of modern embankments and draining were commenced by Vermuyden, one of Cromwell's colonels of horse. The Bishop of Ely in ancient times went in his boat to Cambridge. And the country around, like all our old marshes, is still imperfectly drained. The atmosphere has therefore no natural advantages. The Public Health Act was introduced in 1851. The Ely Board of Health was founded. They set on foot two great works; one for supplying the town with water, the other for carrying off that water through every house clear out of the town. The public works were completed at the end of 1854; and the houses were gradually connected with the public sewers, leaving, however, at the end of 1857, 200 in 1200 houses out of connection. Mr. Marshall, the superintendent-registrar of the district, in an able paper shows the result of this great experiment. In the seven years (1843-49) before the Public Health Act was in operation the mortality was at the rate of 26 deaths annually to every 1000 living; in the seven subsequent years (1851-57), when the sanitary measures were only partially carried out, the mortality fell down to the rate of 19 deaths annually to every 1000 living. The mortality in the last two years (1856-57) was at the rate of 17 in 1000. In the same periods the surrounding rural parishes underwent some improvement; but the improvement of the city has advanced so much more rapidly that its mortality was in the last two years 4 in 1000 less than the mortality of the surrounding country. The young people under the age of 35 have enjoyed remarkable immunities from disease, and the benefit will be transmitted to succeeding generations. The two chief sanitary works which have been completed are the introduction of water taken from the river of inferior quality, and the destruction of 4000 cubic yards of cesspools—nearly four yards to each house. The surveyor, Mr. Burns, exclaims, with justifiable pride, 'There is still a number of cesspools remaining, and the sooner they are done away with the better. After this is done, I may truly say that I found Ely a city of cesspools, filth, and sickness; but I shall leave it a city of drains, health, and cleanliness, and that is something to be proud of.' Yes, Mr. Burns, you may well be proud of your work. Pau, in the Pyrenees, to which British in-

valids still resort for health, experienced a mortality of 28 and 23, when you had reduced the mortality of Ely to 17 in 1000.

"The citizens of Ely have sunk 15,000*l.* on their sanitary works, which appear to have been conducted in something like the same determined spirit as animated Cromwell's colonel of horse. Certain rate-payers who enjoy the benefits complain of the burthen of the rates.

"We may now turn from this small resolute city in an agricultural district to Liverpool, the second city of the kingdom, where the great work of sanitary improvement is also advancing.

"Liverpool lies on the shore of the fresh, deep, wide Mersey, which is lined by her magnificent docks, and the houses rise from the river over the red sandstone heights in long stretching lines. Lancashire and Cheshire cover the plains and hills behind the queenly town; before her are Ireland, America, and the ocean which her ships ride over, carrying foreign produce or the manufactures of the north to and from the various regions of the world. The place is well chosen for health; and in 'Gough's Camden' (ed. 1806) Liverpool is said to be celebrated for 'her beauty and populousness.' Yet it was found and published in the first Registration Report that the mortality of the population of this district was in the latter half of 1837 at the rate of 39 in 1000 annually; while the population of West Derby, containing, with other parishes, the outlying parts of the borough, died at the rate of 25 in 1000. The strong contrast between the contiguous places and the subsequent discovery that Liverpool was one of the unhealthiest parishes in the kingdom, excited surprise as well as regret in the public mind. A local association was formed of some of the best people; and the causes of the mortality were investigated, and were afterwards made known by Dr. Sutherland in a series of lucid papers. Little, however, was done; the prophets had been crying in the desert; and in 1846 the mortality grew still more threatening. Cholera raged fearfully in the borough in 1849. Steps were now taken to carry out sanitary measures, under the direction of Dr. Duncan and the other able officers of the town. The sanitary school of Liverpool subsequently furnished some of the most efficient members of the commission which did good service in the East. Still it is to be regretted that the health of the great bulk of the population has improved but slowly. Liverpool has a good supply of water; but it is still infested by cesspools, including under this name the filthy Lancashire midden; and the drains pour their contents into the dock basins, which exhale a malarious sickly air over the people. The mortality in the borough of Liverpool was at the rate of 29 in 1000 in the year 1857. Much good, therefore, has been done since 1857; thousands of lives have been saved. Still Liverpool has not yet, like Ely, taken the bull by the horns. Or why should not the mortality be as low as 19 or even 17 in 1000? What natural advantages has Ely, taking one thing with another, over Liverpool? If Ely has had thousands of cubic yards of dirt removed, Liverpool has hundreds of thousands of cubic yards to deal with; but her means are commensurate with her duty. Mr. Newlands can do for Liverpool what Mr. Burns has done for Ely. The cesspool, the midden, or call it what they may, for it is still the same, is the chief destroyer of the Lancashire population. Crowded dwellings, vice, want, do a part of the mischief; but in Liverpool the cesspool destroyed a large proportion of the 6418 people who last year perished in excess of the numbers who would have died at the rates prevailing in country districts. The tender-hearted may shed natural tears over them as they lie in the cemetery. Abolish the cesspools of Liverpool, and you immediately save the lives of thousands of people. Yet the parties who have exerted themselves to put a stop to capital punishments have not been roused by the ruthless destruction of men; and no Beccaria has written on these, crime, and punishments. A living poet, in one of his last poems, exclaims—

'Ah, it is the gallows tree!
Breath of Christian charity,
Blow! and sweep it from the earth.'

"But what number of lives did the 'gallows tree' take away in 1857? 13 in all England and Wales; two only in Lancashire. And these were the lives of

murderers, who were put to death for their crimes after the most deliberate judicial inquiry. But the 6418 men, women, and children of Liverpool, were destroyed cruelly in that year without discrimination. Of the cesspool, rather than of the gallows tree, a wiser muse will sing—' Sweep it from the earth.' "

ART. 2.—*Adulterated and unhealthy Milk.* By Dr. ROUTH, Physician to the Samaritan Free Hospital for Women and Children.

(*British Med. Journal*, April 5, 1858.)

Cows' MILK.—This is the substitute for human milk best known in these regions. The absence of odor and its more general diffusion, are advantages in its favor. In appearance it is of a bluish-white color, almost tasteless, specific gravity varying from 1930 to 1035. Its microscopical characters are about the same as those of human milk, excepting that the milk-globules are more abundant. Now, it is clear, comparing this with woman's milk, that—1, the quantity of water is less in the cow; 2, the solid matters are in greater quantity; 3, the sugar is less in amount; 4, there is more casein; 5, and more butter; 6, the salts are also in excess.

It is quite manifest that a simple dilution of this milk will not suffice. This may be added to diminish the relative quantity of casein and butter to the normal figure it attains in human milk; but it will only reduce unduly also the amount of sugar; and thus, at the outset, we meet with a difficulty in its employment. But there are other difficulties more serious and difficult to contend with, and which tend to affect materially its quality. A few of these I will consider *seriatim*. They are—1, adulteration of cows' milk; 2, its acidity, dependent upon stall-feeding; 3, the effect produced upon the milk by feeding cows in a proper manner; 4, the effect upon milk of keeping cows in unhealthy sheds.

Adulteration.—The most painful part of our experience in town is, that pure milk cannot be procured; it is almost always adulterated. In the excellent work of Becquerel and Vernois, the '*Annales d'Hygiène*' (and in this respect Dr. Hassall confirms their results), it appears to be adulterated in Paris by the following substances: water, glucose, flour, starch, dextrine, infusion of amylaceous matters (rice, barley, bran), grumous matters, yolk of egg, and white of egg; sugar, gelatine, liquorice, boiled carrots, broken-down calves' brains, serum of blood, several salts, bicarbonate of soda, chalk, turmeric, emulsion of hemp or almond seeds, &c. We do not, however, find that most of these are commonly employed. The adulteration by water is, however, extensively practised in England. Dr. Hassall, out of 26 samples of milk, found that 11 were adulterated with water in the proportion of from 10 to 50 per cent. Dr. Sanderson, the medical officer of health for Paddington, found in 32 specimens of the milk examined by himself and Mr. Alfred Bernays, of St. Mary's Hospital, that in all, except one, the quantity of water was greater than what it was in pure milk. In many instances (12 times), the quantity of solid constituents was only half as great as it should be, in a few only one-fourth; many specimens containing less than 6.5 or 5.8 per cent., in a few gradually diminishing to 3.5 instead of 12.98 as in pure healthy milk.

Dr. Hillier, the medical officer of St. Pancras, examined 20 specimens of milk, and found that the quantity of water added varied from 25 to 50 per cent. That supplied to the workhouse was one of the poorest. Instead of a gallon containing nearly 9000 grains of *solid* matter, it contained only 5425 grains, or two-thirds the proper quantity. Dr. R. D. Thompson found in Marylebone, that the gallon of milk, in seven samples, weighed as a mean, 71,680 instead of 72,415 grains, which amounts to the withdrawal of 1.44 oz. of solid matter, well calculated to nourish the body, and substituting for it water. Dr. Hyde Salter and Mr. Hunt, from the confessions made to them by milkwomen, their patients, state the quantity of water usually added is one gallon of water to two of milk. What sort of food can this be for an infant, especially if diluted as it almost invariably is by the purchaser, and often afterwards by medical direction? Is it to be wondered at that children fed on such weak milk do not thrive?

Acidity.—Cows' milk, except the animal has been fed upon grass exclusively, is almost always *acid* in stall-fed cows; human milk is always alkaline; hence another reason why cows' milk disagrees with many children.

The experiments of Dr. Mayer, of Berlin, are particularly conclusive upon this point. He says, for a considerable time he had been in the habit of examining the milk of every householder in Berlin, and testing it by litmus paper, according as the cows were fed from brewery slops or brandy lees, gardeners' produce, or in the country. In every instance, except one, he had found the milk decidedly sour. *a.* Of cows fed with brewers' lees, red potatoes, rye bran, and wild hay, in five instances the milk was slightly sour, in one very much so. *b.* Of forty cows fed with potato mash, barley husk, and clover and barley straw, in ten which were examined the milk was sour, in three very sour. *c.* From among fifty cows, fed on potato husks, barley husks, and wild hay, five were examined, and all the fresh milk was sour. *d.* From fifty-two cows, fed on potato mash, husks, wild hay, rye straw, out of twelve selected for examination, the fresh milk of all was sour. *e.* From six cows, fed by a chief gardener on coarse beet-root, red potato, bran mash, and hay, the fresh milk was faintly sour. *f.* From five cows, fed by a cow-feeder on lukewarm bran mash and hay, in four the fresh milk was quite neutral, in one it was decidedly alkaline. The whole of these experiments were made in the winter season, when cows were necessarily stall-fed, and confirm the truth of the general opinion, that the fresh milk of stall-fed cows is almost invariably acid. Dr. Mayer does not believe that this acidity is due to want of exercise, so much as to the unscientific manner in which the cows are fed; and he particularly objects to the potato mash, which he considers the cause of this acidity. The milk of the cows of gardeners and cow-feeders is usually praised by the Berlin women as being particularly good. But Dr. Mayer has observed that it often gives rise to diarrhoea and cutaneous eruptions in children; which, he supposes, is due to the cows being fed with the cabbage, turnip, and potato refuse. The very worst milk is that supplied by cows fed on potato refuse from brandy distillers, as opposed to that obtained from the cows of cow-fatteners, which feed on hay and grass in stalls. By substituting the milk of the latter for the former, he is often enabled to arrest at once the intestinal derangements previously referred to.

Effect upon cows' milk of various kinds of food.—It must be admitted that a great deal depends upon the manner in which cows are fed. Generally, this is done in the cheapest possible way, because milching cows so deteriorate in value after eight or nine months' use as such. I am told that a cow purchased for 18*l.* to 20*l.* at the beginning of a season, will sell at a loss of 6*l.* to 8*l.* at the end of it; they look so small and meagre. But this may easily be prevented. A very intelligent gentleman in Nottinghamshire has informed me that if the cows are fed upon a steamed food composed of chopped hay, bran, malt calms, and rape-cape, not only will they produce an extra quantity of milk, but keep throughout the milching period in first-rate condition; in fact, they will, at the end of the six or nine months' milk, look as well as they ever did.

Country milk and town milk.—The former is stated to be preferable to the latter. The reason is, no doubt, that the cows are less crowded together, and the milk is less watered. Becquerel and Vernois have also proved the truth of this popular opinion from their experiments.

This is not, however, due to the mere exposure to country air, because experiments have been made, and when the cows are fed on hay, with oats or barley-straw, the ordinary culinary roots, with a certain quantity of wet bran, a similar result is obtained in towns.

Summer and winter milk.—Owing to the difference of nutriment given, the composition of these two milks is not the same. The principal difference observed in winter is a diminution of the water, and among the solid constituents an increase of the butter only; both the casein and sugar are slightly diminished. In summer, there is more water; but what is remarkable is, that among the solid constituents the casein, sugar, and salts are diminished, and the butter is considerably increased.

Results obtained by various kinds of food.—Dr. Playfair adduces an example

of a cow fed on much nitrogenous matter, in which not only was the amount of nitrogenous matter or casein in the milk increased, but also the butter. Certainly the yield of milk is increased by much of that stimulating diet which is occasionally given to cows, such as refuse slop from whisky distillers, which is known to be given largely in America, and for which cows acquire so depraved an appetite that they will not take afterwards their ordinary food. Other less exciting food has the same result. Thus, Parmentier and Deyeux found that cows fed on the leaves and stalks of maize yielded more milk than when fed on ordinary fodder. Moreover, the milk was extremely sweet. The milk obtained from cows fed on potatoes and common grass was much more serous and insipid. That from cows fed on cabbage was much more disagreeable to the taste. Hermanstadt found also that fresh aliments caused a larger quantity of sugar to appear in the milk than dry food.

Among the most approved fodders for cows are sainfoin, Spanish and ordinary trefoil; but there are a vast number of other annual plants chosen from among the graminaceae or leguminosae, which, if cultivated and given to the cows, would prove exceedingly useful. Indeed, Anderson assures us that he had seen cows fed upon trefoil and grass which yielded a superior kind of butter to that afforded by cows fed upon famed old pasture. The ancient faculty of medicine in Paris appointed a commission in 1771 to trace the effects of various roots on the milk of cows. These reported the potato to be particularly useful in increasing the quality and the flow of milk; and that its administration to mothers of thin, weakly children had led to the rapid improvement of these latter in every respect.

Effect on milk of keeping cows in unhealthy sheds.—The supply of good and selected food is, however, only one part of the management needed to insure good milk from milk-bearing animals. Excessive cleanliness should in every way be enforced. Upon the subject of the cleansing of cow-sheds, Messrs. Parmentier and Deyeux remark: Nothing contributes more to maintain the good quality and quantity of cow's milk than scrupulous cleanliness in the shed. If the fecal matters are left about and removed only at long intervals, the cows lying amid all this mess are always weak; the udders are hot; and the milk, so susceptible of acquiring a bad odour, soon contracts the bad taste, from which it is with difficulty again deprived. The great reputation of the cows of the Prevalaye is due to the remarkable cleanliness in which they are kept, which also enables them to yield an abundance of milk, and to be particularly innocuous to disease.

There can be no doubt, from the general foregoing remarks, that if the subject were more closely studied, cows and goats might be so cared for and so fed as to yield a quality of milk which would be found most serviceable to children brought up by hand. The milk obtained from cows fed upon beet-root, with a very small dilution of water, might be brought so closely to resemble human milk as in all respects to perform the same services. But every day's experience proves that nothing but the most stringent measures can effectually remedy the abuses that prevail. Parliament must interfere, and in what better cause could it do so than by compelling all cowkeepers to sell good milk, to strengthen the bone and sinew of its people, and preserve the lives of thousands of helpless babes? Till this is done, our best efforts, it is feared, will prove nugatory.

ART. 3.—*On vegetable substitutes for Human Milk.* By Dr. ROUTH,
Physician to the Samaritan Hospital for Women and Children.

(*Med. Times and Gazette*, Aug. 21 and Aug. 28, 1858.)

One would have thought that a very little reflection would have convinced any observer, that if among herbivorous mammalia the young require animal food, that is, *a priori*, a strong argument against the use of vegetable food; yet even upon this point our medical authorities are not agreed; many vegetable compounds are both recommended and taken. Apart from this common-sense view of the question, the physiological construction and anatomical arrangement of the alimentary canal of a child, prove that it requires animal food.

Upon this point, Burdach in his 'Physiology,' and West in his 'Diseases of Children,' speak graphically. It is remarkable that suction is the only faculty for the prehension of food which the child possesses on birth, and even this is soon lost if not practised. The jaws are not so constructed as to permit active movements, nor the gums to bear pressure. The hard palate is, moreover, but little developed; albeit, the cavity of the mouth is sufficiently wide. There is, moreover, no saliva secreted for the first two months, so that no species of preparatory change can take place in it, as in the conversion of starchy matters into sugar, through the agency of this fluid (saliva). It is, therefore, merely an organ of transmission and suction. The lips are large, and the tongue and pharynx, uvula, soft palate, well developed to secure these ends.* The stomach in infants is a small tube-shaped membrane, dilated in the centre, one extremity ending in the œsophagus, and the other in the pylorus, resembling in this character that found in carnivora through life. In position, also, it lies more parallel to the trunk; the large and small curvatures and muscular structures being but very little developed. The liver at birth is unusually large, the pancreas perhaps not more developed than the salivary glands: the intestinal tube is much shorter, and the large intestine approaches more nearly in its length to the small. The cæcum (in which, moreover, it is believed a sort of additional digestion occasionally occurs) is very small. The peristaltic motion is more rapid. All these are evidences that food taken will be kept for a shorter time in the canal, and, therefore, should be in the condition most favorable for digestion.† In none of the mammalia, lastly, is there such a complete absence in the first periods of life, of teeth. In man they appear latest, and are longest in obtaining their total number. Let us compare these appearances with those observed in herbivorous animals. Well-developed salivary glands, compound stomachs, sometimes four in number, muscular gizzards, as in some birds, long intestines, large cæcum, etc. etc., are the exact opposites to what we find in young infants. As the child grows, the changes which are permanent in herbivorous animals make their appearance. The stomach, moreover, assumes a more horizontal position, the valvule conniventes become well developed, the peristaltic motion of the intestines becomes slower; in fact, all the changes calculated to retard the food in its progress, and thus to expose it more completely to the solvent juices for digestion occur, the reverse of what we find in infants, all of which proves indubitably that animal, not vegetable food, is the proper diet for an infant.

If among granivora and herbivora the food essential to their preservation when very young is animal, *à fortiori*, is it the case with the omnivora and carnivora. As man belongs to the omnivorous class, there must, however, be a time when vegetable food may be given. There is no doubt a relation between the period of time occupied in incubation, and the time when an animal is so far developed and grown to partake of herbivorous food without danger. Thus, if a granivorous bird occupy three weeks in incubation, a mammal one month, we should, *à priori*, expect the offspring of the former would be sooner capable of maintaining life independently of its parent than the latter. Again, the same thing would apply to an herbivorous animal provided with a stomach fitted for digestion of vegetables, a compound stomach, as compared to a carnivorous animal, with only a membranous stomach, even though the period of gestation were the same in both. Thus, in the cow and in a woman, gestation has the same duration; but in the one case, the calf, we have the compound stomach, in the child the simple membranous tube, and so the former depends less upon its parent, and attains independent existence and maturity sooner. The best test, however, of capability of independent life in man is the dental apparatus. The appearance of the teeth is our only guide that a child is maturing rapidly, or the reverse in that condition when vegetable food may be safely administered.

Now it would appear that the eighth month is about the period that vegetable food may be borne. The teeth which appear are not of value as capable of mastication, but indices simply of sufficient development in the organs of

* Burdach, p. 434.

† West, pp. 402, 403.

digestion, which progresses, *pari passu*, and that the salivary and pancreatic glands, the glands of the membranous stomach, are capable of doing duty. The eighth month is, therefore, about the earliest period when a change of food may be given, and, consequently, weaning may be tried, if necessary. But even in this case the most easily-digestible vegetable aliment only should be administered, and then it is best to continue also, in great measure, the animal milks.

As I have elsewhere said, animal food is, as it were, the essence of vegetable food, but far more digestible. But there is another peculiarity possessed by animal food. Liebig has shown that the blood in the body is preserved alkaline in carnivorous animals through the agency of the subphosphate of soda; whereas, in the case of herbivorous animals the salt then maintaining the alkalinity of the blood is the subcarbonate of soda. This last result, however, only applies in the case where the food consists exclusively of the lowest grains, roots, green vegetables, and fruits, the ashes of which contain carbonates: because if lentils and the higher cerealia, as wheat, oats, etc., be employed, then, as their salts are nearly the same as the salts of blood, the subphosphate of soda is the salt found in the blood. But more than this; in meat, and the higher cerealia, not only have we a large quantity of mineral ingredient, but we have also a large quantity of plastic or nitrogenous element. The hydrocarbonaceous, calorifiant, or combustible element contained is also in fair proportion, so that many of them may then be safely used. Still there is a very great disparity between these vegetable substances among themselves, as compared with animal compounds. In order to make this clear, I have annexed the following table, compiled from Liebig and R. D. Thompson, in which the amount of nitrogenous or plastic matter being expressed by ten in all cases, the relative amount of combustible or respiratory material is given for the purposes of comparison.

Proportion of ten plastic to the following quantities of respiratory matters in the following articles of consumption:—

Veal	1	Rye flour	57
Hare	2	Barley	57
Beef	17	Maize	70
Lentils	21	Potatoes, white	86
Beans	22	East Indian rice	100
Peas	23	Dry Swedish turnips	110
Fat mutton	27	Potatoes, blue	115
Cow's milk	30	Rice	123
Linseed	30	Arrowroot	260
Fat pork	30	Tapioca	260
Human milk	40	Sago	260
Wheat flour	46	Buckwheat flour	130
Oatmeal	50	Wheat starch	400

The respiratory ingredient in these vegetable substances with large figures being chiefly starch (such as, if digested at all, becomes converted into sugar), would lead, as shown by Magendie's experiments, to the development of scrofula, from a deficiency of plastic or nutritive ingredient. But from the non-development of saliva at an early period, it is to be feared even this change would not occur. And this seems, often, at least, to be the case. In a paper published on the 'Diet of Infants,' Dr. Stewart, of New York, in speaking of the Parisian hospitals, says: "It is the custom at these and similar institutions, whenever an infant is sick, to withdraw him altogether from the breast, and to substitute for the milk some farinaceous substance, made fluid by boiling—arrowroot, gum, and rice water, or a thickened preparation of rice, known as 'crème de riz,' and other preparations of a similar kind forming the diet of a sick infant. In the reported cases of the Foundling Hospital, and those for the reception of sick children, prescriptions of this nature form a very important part of the treatment, as will be seen by referring to the different treatises in French on the diseases of children." "The attention of M. Guillot being directed to the changes which the food given to children underwent, and to the

excessive mortality among them, he instituted a series of investigations in a number of cases of death, with special reference to the state of the contents of the bowels. He was struck with the uniform similarity—a jelly-like substance being present in the bowels, and in some instances lining both the small and great intestines. This was subjected to the test of the tincture of iodine, which produced an intensely blue color, thus proving it to be starch.* This jelly-like substance is sometimes tinged with blood. Its presence, however, in the bowels of a child proves that starch is not digestible, at least in the early periods of life, which is, in fact, what we might have anticipated. In adults it is converted into sugar; but if this change is not effected in the child, in whom two of the principal organs that bring about this change do not act at all, or at least very imperfectly, the presence of starch in the bowels in any excess must be detrimental and injurious. Yet how frequently, even by medical men, is arrowroot ordered in cases of diarrhoea as the exclusive diet!

A favorite substitute, also, for human milk is barley; or, more properly, patent barley. Here, again, is a flour comparatively poor in nitrogenous material. But, besides this, it contains dextrine, a substance which even in the adult is difficult of digestion, and, *a fortiori*, must be so in a little infant. Its starch-corpuscles are less soluble in the gastric juice, the milk is slightly acid, and somewhat laxative. (Hassall.) When barley paste is washed, the milky fluid deposits, as well as the starch, a protein matter, supposed to be insoluble casein.

Next in esteem with the public is pap. Now pap is given very early. I have seen it given to a child from birth. It seemed to thrive upon it at first, but in about a month's time the child, which was enormous for size, sickened, and recovered only after much difficulty. Now, here the popular prejudice in favor of white bread proves often a source of death. To show this distinctly, however, it will be necessary to recur to some of the saline constituents of wheat, as compared with those of milk; the comparative disadvantage of wheat flour, as given in bread, being the decomposition of the phosphates into insoluble, and therefore useless salts to the economy, and also to a marked deficiency in chloride of potassium.

The salts of milk are not the least important of its constituents. They are stated in the annexed table for human and cow's milk:—

MEAN OF TWO EXPERIMENTS.

<i>Cow's Milk.</i>		<i>Human Milk.</i>	
Phosphate of lime	2.84	Carbonate of lime	0.706
Phosphate of magnesia	1.06	Other salts	0.053
Phosphate of peroxide of iron . . . . .	.07	Chloride of sodium	0.098
Chloride of potassium	1.63	Sulphate of soda	0.074
Chloride of sodium . . . . .	.29		
Soda . . . . .	.43		
	1000		1000

Schwartz, in his 'Journal' (vol. viii. p. 270), mentions as contained in 100 parts of human milk the following enumerated salts: Soda, resulting from the decomposition of lactate of soda, 0.03; chloride of potassium, 0.07; phosphate of soda, 0.04; phosphate of lime, 0.25; phosphate of magnesia, 0.05; phosphate of iron, 0.001.

I pass on to speak particularly of the phosphate of lime. This salt, especially when combined with carbonate of lime, is most important in the process of alim-entation. It is upon their combined agency that the solidity of the skeleton depends. Moreover, the peculiar property of phosphate of lime in enabling blood to take up more carbonic acid, is not one of the least interesting of its uses. Its administration, whether in a separate form or in aliment to a growing animal, is thus peculiarly indicated. Deformity of every kind in the skeleton may depend on an insufficient quantity of this salt; for it should be re-

* Dr. Stewart on 'Diet of Infants,' Dublin Journal, 1845, pp. 141, 142.

marked, that not only is it useful because it is itself appropriated into the system, but also because by its peculiar influence on carbonic acid it increases the quantity of carbonate of lime held in solution in the blood, and facilitates in this way its deposition in the bones. Chalk, or carbonate of lime, is insoluble in distilled water; but in proportion as this becomes saturated with carbonic acid, so it takes up a larger quantity of this chalk—a property never to be lost sight of, when it is wished to strengthen a growing child. Again, “The phosphate of soda has an alkaline taste and reaction like the carbonate, and its solution in the presence of free carbonic acid takes up as much of that acid as carbonate of soda does; and, like it, only more easily, gives it off by agitation in vacuo, or by evaporation, without losing its power of again absorbing carbonic acid. Hence it follows that the change of acid combined with alkali by phosphoric acid has no pernicious influence, and *vice versa*, because it gives rise to no alteration in the essential properties of the blood. The processes of sanguification, of the production of heat and secretion, are carried on alike under the influence of the predominating alkali,” as before stated.*

But phosphate of soda seems to possess another useful property in the economy. The fatty acids, stearic and margaric, are converted into emulsions in the chyle through its agency, so as to allow of their easy assimilation in the system. This peculiar property, discovered by Dr. Marcet, and lately exemplified by Dr. Thudichum before the Medical Society, is of immense importance in the explanation of the digestion of fatty matters, and is another reason for supplying food rich in phosphoric acid and soda, which is especially the case with animal aliments, to growing and weakly children; fat, it being well known, being the nucleus around which albuminous matters are deposited.

Of phosphoric acid in particular as an acid, and viewed in its regard to alimentation, there are several very interesting points of view. The blood is alkaline, and, as opposed to this, flesh is acid, this acidity being due to phosphoric acid. In vegetables, also, the excess is on the side of the alkali, except in the case of the more nutritious kinds of grain, which are rich in phosphoric acid.

There is one peculiarity in the solid portions of animal food, flesh, and muscle especially. These contain excess of phosphoric acid; but in muscle, and in soup made from muscle, we have also excess of chloride of potassium in lieu of chloride of sodium. Now there is considerable analogy in this respect in milk which contains an excess of chloride of potassium, although it also contains some chloride of sodium. The following table will show this:—

Composition of Ashes of Flesh. (Keller.)		When boiled there enter into the soup.	Composition of Ashes of Milk. (Com.)	
Phosphoric acid	36.60	26.24	Phosphate of lime	50.7
Potash	40.20	35.42	Phosphate of magnesia	9.5
Earth and oxide of iron	5.69	3.15	Phosphate peroxide of iron	1.0
Sulphuric acid	2.95	4.95	Chloride of sodium	5.0
Chloride of potassium	14.81	14.81	Chloride of potassium	27.1
(* Liebig's Letters, p. 428.)			Soda	6.7
		100		100

No doubt its large excess in the milk answers many of the purposes of the chloride of sodium in the economy. Chloride of potassium enjoys the peculiar property, however, in common with carbonic acid, of dissolving carbonate of lime or chalk. Its use, therefore, to the infant, for holding in solution in the blood this chalk for the purposes of the skeleton, and supplying to the muscular system a salt essential to that structure, must appear at once obvious.

To return, however, to pap—and the first remark applies to most of the grains, if we except the pea and bean tribes, which are all deficient in the same way. There is no chloride of potassium in wheat, etc., and, necessarily, in bread. But more than this, the phosphoric acid is completely neutralized in

* ‘Liebig's Letters.’

its effects. Englishmen like to use white bread, which, independently of containing less nutritive matter than brown bread, as I have fully shown elsewhere, contains alum. This adulteration is known to make inferior flour, and of a bad color, white, and in appearance equal to flour of superior quality; and, secondly, it enables flour to retain a larger quantity of water, by which means the loaf is made to weigh heavier.—(Hassall.) The bread is also less liable to crumble as it gets stale. Accum, quoted by Hassall, states the smallest quantity of alum that can be employed to produce this white appearance is 4 ounces to a sack of 240 lbs. Dr. P. Markham states 8 ounces to be the usual quantity employed, and Mitchell found in the 4 lb. loaves he examined the amount of alum varied from $3\frac{1}{2}$ to 116 grains in each. 114 grains would amount to 20 ounces to the sack.—(Hassall.) In 28 samples of bread in London examined by Dr. Hassall, in all was alum found, in smaller or larger quantities. The injurious effects of alum cannot be too strongly urged. Alum forms with phosphoric acid, as Liebig has shown, an insoluble salt, thus preventing the phosphoric acid from being appropriated to the economy. The blood thus becomes incapable of performing its duty, and hence the child deteriorates, and in the end will die. And herein is the explanation of that frightful amount of disease in pap-fed babies. The phosphoric acid, so essential to them, is lost altogether. The brain and nervous system, the bones are arrested in their development; and hence also the explanation of the great comparative success in bringing up children by hand in the country on home-baked bread, which contains no alum, and which, although of darker color, provides phosphoric acid in an assimilable state to the child. But there is another way in which pap proves injurious. It is, perhaps, more often than is recognized, the cause of death. It has long been known that bread and milk, if given to canaries in any quantity, swells in their stomachs, and thus, pressing against the heart, impedes its action, and is often a cause of death. The same result sometimes occurs in the infant. In a paper published in the 'Association Journal' for February, I have enumerated several fatal cases in which the coroner's verdict assigned over-feeding with pap as the cause of death.

Another fraud extensively practised in London is the large admixture of rice-flour in bread. This, I believe, is not generally known; its great whiteness, its great power of absorbing water, are properties peculiarly well known to bakers, and not only ordinary bakers, but many of our hypocritical workhouse-poor feeders. I have been informed by a wholesale corn and flour merchant, that there is a species of rice-flour which is expressly kept for the purpose of adulterating bread, and which is largely employed by our London bakers. In this way the nutritive power of the bread is considerably diminished, although the calorific power is increased, the proportion of the former to the latter being, instead of 1 to 7, as it ought to be in wheat flour, increased to 1 in 10 or 11, producing precisely the same results in the human frame as those which follow the employment of a diet too exclusively saccharine, viz., scrofula, atrophy, and all its dependences.

Among the vegetable substances, that which comes closest to milk in its composition is, without doubt, lentil powder, or, as it is called for the purpose of obtaining a better sale, *Revalenta Arabica*, containing both phosphoric acid in abundance and chloride of potassium; it also includes casein, the same principle which is found in milk in its constituent parts. Moreover, its nutritive matter is to its calorific matter in the proportion of 1 to 2 $\frac{1}{2}$, milk being in that of 1 to 2. No wonder, therefore, that under its influence many children affected with atrophy and marked debility have completely recovered. I have given it with the very greatest advantage in such cases, and, so far as I may judge from my own experience, I should conclude that practice fully carries out what theory, from a knowledge of its composition, would have led us to anticipate. Lentils have also a slightly laxative effect, and, therefore, in many instances, where the child is of a constipated habit, they are to be recommended. Peas and beans in this respect resemble lentils; the former, however, is objectionable, on the ground that it produces much flatulency. The latter is not generally obtainable; still the bakers take advantage of this fact in regard to the beans, and usually, where wheat by partial germination has

lost some of its nitrogenous aliment, or where the flour used is poor in quality, they add a proportionate quantity of white bean flour, to restore it to its proper nutritive value.

The only advantage which another popular ingredient seems to have (I allude to what is called baked flour) is that it contains a smaller quantity of water, which has been expelled during the heating process, and in this respect it comes to resemble more closely, because more concentrated, an animal compound. Moreover, from its greater capacity to absorb moisture, it is somewhat more astringent, and less likely to produce diarrhoea, which, indeed, it often checks; but the absence of chloride of potassium and fatty matters in it, both so essential in growth and all development, is, I think, a great objection to it. Indian corn flour, which contains much oily matter, is preferable to it for this last reason. Hence, if given, they should, to supply fat and chloride of potassium, be mixed with milk.

The conclusions to which the present paper leads me are—

1. The analogy of comparative anatomy of warm-blooded animals, and the special anatomy of a child's alimentary canal, indicate that its food should be animal.

2. The child should not be weaned, if it can be avoided, before the eighth month. At this period it may be allowable to give vegetable food, but animal is better.

3. The vegetable aliment selected should contain chloride of potassium and phosphoric acid among its mineral ingredients, and a due proportion of plastic as compared with calorifiant matters, excess of starch being very difficult of digestion.

4. If pap be given, it should be made with milk, so as to include fat and chloride of potassium in the compound, and not given in large quantities; above all, it should not be made with white town-made bread, which contains alum, and is nothing better than a slow poison.

ART. 4.—*Regulation Diet of the Paris Hospitals.* By DR. GEORGE SUCKLEY, late Assistant-Surgeon in the U. S. Army.

(*New York Journ. of Med.*, July, 1853.)

The following is the diet system of the Parisian hospitals: The aliments are divided into bouillons, potages, soupes (au pain), aliments solides (solid aliments), and boissons (or nutritious drinks)—namely, wine and milk.

The diet of a healthy man in his natural state is assumed at about 1350 grammes of solid food (about 42 ounces). This, at first, when the general diet of the hospital patients became systematized, was called *one* portion; patients confined to less being ordered one quarter, one half, &c. of a portion.

It was found, however, that the sick were very much dissatisfied at eating *parts* of a portion. In consequence, the full portion was divided into four parts, each called *portions*; and it was then found that the patients who grumbled most lustily at being restricted to three quarters of the old portion, were perfectly content with *three portions* of the new standard; although in reality the allowances were in equal weight.

There have been, however, several alterations in details, and the single portion, as now used, although approximately in direct proportion to the old full portion, is still slightly varied. This is also the case with the others.

To give a correct notion of the shifting value of the different portions as now used, it is necessary to go into the following details. But I will premise by saying, that a patient confined to what is strictly called *low diet* is only allowed *broth* without bread, farina, or vegetables. The fixed daily amount of this article is a quarter of a litre given twice, making in all a half litre per diem.*

A patient allowed a little higher diet has two broths and two soups a day. The soups contain a little bread or farina, rice, &c. One *soup* contains a small trifle more than a quarter of a litre.

When one portion is prescribed it contains: Soup twice a day, a quarter litre

* The litre is equal to gall. 0.22.

each time; bread, a quarter kilogramme (about half a pound); meat, six decagrammes (about two ounces); wine, three portions, each containing about two and a half ounces. This wine is light, red wine, coming from the middle of France. Milk, three-fifths of a litre daily, boiled. Note.—The wine and milk may be exchanged for each other, at the patient's option.

Meat varies in quantity somewhat according to the number of portions, but not exactly. When one portion is ordered the patient is supposed to be weak, and therefore meat of a better quality is ordered, such as roast beef or fowl. The same quality is allowed when two portions of diet are ordered, but *two portions of diet* do not contain double the quantity of meat that *one* does; although a little more than this latter, being seven and a half decagrammes (about two and a half ounces). Three portions of meat represent twelve decagrammes (about four ounces). Four portions, eighteen decagrammes (about six ounces); but the meat of the third and fourth portion allowance is *boiled beef*. The usual amount of vegetables for one portion of diet is fifteen decagrammes (say five ounces); but of the coarser kinds, as potatoes and cabbage, double weight is given.

With all the portions there is a little boiled fruit or confiture allowed.

Fish is given twice a week in lieu of meat, and a little more by weight allowed than of meat. The regular proportion is kept up with everything but meat and milk. The milk of the hospitals is contracted for by the general administration, and is supplied every day fresh and pure.

It is the duty of the chief apothecary of each hospital to analyze this milk daily, and also to examine it with the polarimeter (sugar deviating the rays of polarized light).

Four portions of diet complete contain: Soup morning and evening; meat six ounces a day; bread, a pound; wine, from twelve to fifteen ounces.

No milk (except by replacement); vegetables, twenty ounces; and more when potatoes, &c., are given.

Extras.—Chop, beefsteak, Bordeaux wine, eggs, chicken, &c., are allowed only upon a *special written prescription* of the attending physician. Eggs, however, are sometimes given in replacement of meat; say one egg to replace two ounces of meat. The rule of the hospitals is to give *meat* itself at least four times a week.

Four portions are not often allowed in the hospitals of the city; as a patient eating them is supposed to be convalescent, and able to go to the hospital for convalescents at Vincennes.

A surgeon occasionally allows a patient five portions, but this is done very rarely.

"The foregoing diet," says Dr. Suckley, "seems to be excellent and liberal for the usual run of *medical* patients, but it seems far too little to support those who are being rapidly weakened by excessive and long-continued suppuration.

"We misguided Anglo-Saxons think that patients in this condition crave and often require a much more considerable portion of food than men in a healthy state. This is to compensate for the drain of the suppuration. The stomach comes to the rescue of the poor suffering system. Should we not, they ask, put into this stomach what it demands? The building-up treatment of the English, or of our surgeons at home, casts far into the shade even the apparent prodigious allowance of five portions, by the French surgeons."

ART. 5.—*Observations on excess of Diet as a cause of Disease, and on its connection with a hitherto unrecognized hypertrophic condition of the Lungs.* By Dr. REN-
NIE, R. A., Surgeon to the Convict Establishment in Western Australia.

(*Proc. of Med.-Chir. Soc.*, June 8, 1858.)

In this paper the author states that he was first led to an investigation of this subject on entering upon his duties as surgeon to the Convict Establishment at Freemantle, in June, 1853, by noticing a remarkable prevalence of cutaneous eruptions and other affections which were entirely confined to the convicts, the explanation of which he discovered in their excessive diet, which consisted,

amongst other articles, of 27 ounces of bread, 16 ounces of fresh meat, daily, some of the men being allowed even more, and each prisoner having also a daily allowance of $\frac{1}{2}$ ounce of tobacco. It was noticed, that the reconvicted prisoners, who had less diet and no tobacco, suffered far less than the general body of the prisoners. It appears that defective means of restraint was, in a great measure, the cause of this great allowance of food being continued by the convict authorities, on the ground that it facilitated their control by moral force. In December of the same year, ophthalmia and dysentery began to appear, and these, too, only among the prisoners, for the most part taking the place of the cutaneous diseases, and leading to the inference that they were mere local varieties of a general constitutional disorder, and, in most instances, were cases of pure metastasis of the cutaneous eruptions. The troops and population generally were entirely free from these complaints, so that there could be no reasonable doubt that they originated in the diet being in excess of the systemic demand; and it must be borne in mind that from October to May the temperature in Western Australia is almost tropical. Under these circumstances, he (Dr. Rennie) made strong remonstrances on the subject; but the convict authorities being unable to comprehend the scientific principles involved in the adaptation of diet to climate, and taking as a precedent the very large diet given in the English prisons, as well as being strongly prepossessed against any reduction of the scale on disciplinary grounds, received his suggestions unfavorably. The result was, that during the year 1854, with a daily average of 706 prisoners, 2921 cases of sickness occurred, of which 1058 were treated in the hospital. Another urgent appeal was then made by Dr. Rennie, in which all the scientific bearings of the subject were fully discussed; and though the convict authorities still continued to oppose his views, Governor Fitzgerald ordered a medical board for the consideration of the question. This board, of which the principal medical officer was president, completely bore out the correctness of Dr. Rennie's objections to the diet, and recommended a gross weekly reduction of 136 ounces. The reduction scale came into force on the 1st of June, 1855, and the results proved increasingly satisfactory, as there was abundant evidence by statistical tables to show. Dr. Rennie having arrived at the conclusion that the immediate cause of disease amongst the convicts in this colony was an excess of food operating on men with impaired constitutions, and consequently with impaired powers of digestion, devoted himself to an inquiry into the physical cause, which he felt satisfied was developed previous to their arrival in that colony, and succeeded in identifying it with a hypertrophied condition of the pulmonary parenchyma, and a remarkable adherent state of the abdominal and thoracic viscera, generally unaccompanied by tubercular deposition, or any indications whatever of previous inflammatory action, and leading him to believe it to be a pure form of hyper-nutrition. The proofs and evidences which led to this conclusion were entered into at great length, as also the appearances, which, with few exceptions, were found in upwards of eighty post-mortem examinations. The portions of lung found most hypertrophied were the upper part of the right lung, and the lower portions behind. The lung-tissue in these parts resembled the appearance described by Laennec as carnification, and at first the condition was viewed as one of chronic pneumonia, but this was disproved by the fact that it was present in nearly every case, and also that, almost without exception, the men so affected never had been, and were not at the time, affected with any symptom of chest-disease. Dr. Rennie, therefore, attributed these abnormal symptoms and appearances to the prolonged operation of a diet too bulky and nutritious for the peculiar circumstances (hot cells and sedentary occupations) under which the convicts are placed during the earlier portions of their imprisonment in England. As the question has naturally presented itself as to whether these extraordinary appearances were developed before or after the prisoners landed in western Australia, and with the view of ascertaining the condition of the respiratory organs, Dr. Rennie availed himself of the opportunity of examining upwards of fifty men immediately on their coming to shore, and in almost every case found a marked difference between the capacity of the two lungs for containing air, the functions of the right one being almost

invariably most defective. In most cases there was, in addition, a general absence of healthy respiration, and, curiously, the more so in those men who had previously been totally free from chest-diseases. All this, Dr. Rennie thinks, strikes at the root of the whole dietetic system pursued during the earlier period of their confinement in England; the state of these convicts with respect to sickness contrasting strongly with that of the inmates of the military prison, who have a simple, wholesome, and yet ample diet, and plenty of exercise in the open air; whereas the convicts, during the first twelve months of their imprisonment, are shut up like hot-house plants in a warm cell, employed at a sedentary occupation, and placed on a diet double that allowed to the military prisoners.

ART. 6.—*On the Death-rate of London.* By the REGISTRAR-GENERAL.
(Weekly Return of Registrar-General, June 27, 1858.)

The following extract requires no comment of any kind.

"Man was made to live a definite time and to experience an average rate of mortality. But the natural lifetime has not been revealed to us, and the circumstances of no city are such as to give us an opportunity of determining the average mortality of a people living under the most favorable circumstances. We cannot, like the ancient writers, refer to a model republic; we cannot point to a single town in England on the slopes of some of her hills, looking southward over fertile fields or distant seas; bathed in a pure atmosphere; supplied with 'a river of water of life, clear as crystal;' with no impurities resting in its houses or streets for a single day; occupied by a people fed on fruits, grain, meat from healthy places, and leading an active, good, intellectual life. No such city has ever been projected, and is certainly not shadowed out by the watering-places of our own, and still less of other countries.

"Hence, the only standard to which we can resort is derived from the least unhealthy districts of England. The mean lifetime of the people in those districts is forty-nine years; and the mean annual rate of mortality would be 20 in 1000, were it not that the increasing population gives them an undue proportion of young and middle-aged people, by which the proportional number of deaths is reduced to 17 in 1000.

"To apply the standard to London. The population consists now of about 2,721,000 persons; they are of all ages; but upon comparing them with the comparatively healthy districts the proportion of young children under five years of age is the same; before the age of 15 is attained the London children are greatly reduced in number by untimely deaths; at 15 to 25 immigrants restore the lost numbers, and from the same source the men and women of the ages from 25 to 45 grow into a great excess; at the ages of 45 to 55 the proportions are the same; after the age of 55 the excessive mortality in London speedily reduces the numbers: the old people, who naturally experience everywhere a high rate of mortality, are not in due proportion in the population of London. By applying the ascertained rates of mortality in the sixty-three comparatively healthy districts, it is found that the annual deaths—if the chances of life were the same in London—would be 41,668 on the above population, or at the rate of 15.32 in 1000 annually.

"The weekly deaths in London on the above population in such a state of health as is actually experienced in those districts would be 799 on an average.

"The actual rate of mortality in London during the last ten years exceeded 24 (it was exactly 24.46) in 1000, which implies 1275 weekly deaths, or 476 above the healthy average.

"In the last week 1092 persons died in London, or 293 persons in excess of the healthy average. That 293 persons died unnatural deaths during the week is the finding of this great inquest.

"What were the causes of these unnatural deaths? The people of London live as well as the people of the sixty-three districts; and they now suffer nothing from cold. Many drink spirits to excess. Too many sleep in the same rooms; and, as in our barracks, this destroys large numbers. Crowding in

ball-rooms, in theatres, in churches and chapels to hear popular preachers, where no adequate ventilation is carried on, propagates zymotic diseases. Impure water is the cause of several deaths; but the companies have of late years supplied water infinitely superior in quality to the water which they drew previously from the parts of the Thames, now admitted by everybody, even their retained chemists, to be offensive. The impurity of the air was unquestionably the cause of a large number of the 293 deaths. This impurity is most noxious in the houses where the people sleep. The cesspools are still numerous; half a million water-closets and sinks discharge large quantities of impure air into the 353,326 inhabited houses. This incommodity is lessened in London by the system of drains, which, however, are badly constructed, and emit their volatile impurities under the faces of the people. The drains again pour their contents into the Thames; from which, in its course through London in ordinary times, more than four million gallons of water are evaporated daily, carrying with the vapor, and diffusing all over the town, impurities which are breathed by the whole population."

ART. 7.—*On the production of Pulmonary Consumption in persons who work in a close and confined atmosphere.* By Dr. GUY, Physician to King's College Hospital.

(*Dr. Beale's Archiv. of Med.*, No. II, 1858.)

The 'Report on the Sanitary Condition of the Army' recently published proves that our soldiers, but especially the infantry of the line and foot guards, are subject to a very high mortality, a great part of which is attributed to pulmonary consumption. It is assumed in the report that this excess of mortality from consumption is traceable, at least in part, to the narrow space allotted to the soldier in the barrack and guard-rooms: but as no proof of the dependence of pulmonary consumption on this cause is given in the report, it may be useful to republish, from my evidence laid before the Health of Towns Commission in 1844, the following table, based upon measurements of the offices of letterpress printers, and the number of compositors working in them, together with the answers given to certain simple questions addressed to the men themselves.

	Number per cent. subject to Spitting of Blood. Catarrh.	
104 men having less than 500 cubic feet of air to breathe	12.50	12.50
115 men having from 500 to 600 cubic feet of air to breathe	4.35	3.48
101 men having more than 600 cubic feet of air to breathe	3.96	1.98

It is scarcely necessary to add that the number of compositors who answered the question, Had they ever spit blood? in the affirmative, would correspond very closely to the number actually suffering under consumption; just as the number stating that they were subject to colds would afford a good indication of the number in the three classes who were predisposed by the same close and confined atmosphere to suffer by exposure to the common causes of diseases of the chest.

ART. 8.—*Effects of Arsenite of Copper upon paper-stainers.*

By Dr. GUY, Physician to King's College Hospital.

(*Dr. Beale's Archiv. of Med.*, No. II, 1858.)

In the correspondence which has lately taken place in the medical journals and in the newspapers, on the effect produced upon the health of persons living in rooms covered with arsenite of copper paper, nothing has as yet been said on the more important question of the effect produced upon the health of the men engaged in the manufacture of the paper itself.

The coloring matter is mixed with size, and kept in a proper state for use by the heat of warm water. It is laid on to the paper with brushes, and suspended in the warm room to dry. When a bright green color is to be produced, the arsenite of copper is used alone; but the lighter tints of green, down to the very palest, are obtained by mixing the arsenite with oxide of zinc or porcelain

clay, or (for paper-hangings) with whitening. The coloring matter in the act of being laid upon the paper, stains the hands of the workman, and collects under the nails, and being absorbed into the system, produces the effects now to be described. After working one day with the emerald green, a papular rash makes its appearance at the junction of the nostrils and upper lip, then successively on the chin and back of the head, and, after working two days, on the eyelids. The rash also appears at the bends of the elbows.

These appearances are followed by irritation of the scrotum, which terminates in the formation of superficial round ulcers, looking as if they were cut out by a punch; they are about the size of a split pen. The rash, which is originally of a papular form, goes on in parts to pustulation. The rash on the skin lasts about five days; the ulcers of the scrotum are more obstinate. The rash is very painful, especially in the evening. Lithographic printers use the emerald green, and the boys who spread the powder suffer more than even the paper-stainers, especially from itching of the scrotum. In some instances the scrotum is first affected; and in some other cases it is the only part that suffers.

Dr. Guy has had, as patients, four men, employed in the manufacture of green paper for book-covers and similar purposes (not for paper-hangings), and he has taken this account from their statements; as well as from personal inspection and inquiry at the manufactory where they are employed. The symptoms present in these patients, in addition to those which have been just stated, were inflammation of the conjunctivæ, not accompanied by any tenderness in the epigastrium. Of two patients, in whom the number of the pulse was counted in the erect posture one a pulse of 120, the other a pulse of 80. One of the patients, at the time when he applied at the hospital, had three or four open sores on the scrotum, one as large as a fourpenny-piece and one as large as a sixpence; he had also the rash behind the ears, and at the bend of the elbow, and he attributed the loss of a toe-nail and the expected loss of the nail of the right thumb to the same cause. Another workman stated that he was in the habit of working with arsenite of copper for one or two days at a time; that it made his eyes smart and his nose and chin sore. The men stated that they were not able to continue at work for more than about three days at a time, that they use no precautions, but were in the habit of taking a dose of castor oil occasionally.

ART. 9.—*On the maladies of persons occupied in preparing Sulphate of Quinine.*
By M. A. CHEVALIER.

(Gaz. Méd. de Paris, May 22, 1853.)

In a communication to the Academy of Sciences in Paris, M. Chevalier states that the workmen concerned in the manufacture of sulphate of quinine are subject to a cutaneous eruption, and also to a peculiar fever. The cutaneous eruption in some instances is very severe; not unfrequently it obliges the workman to remain away from his work for a fortnight, a month, or even longer still; sometimes it makes it necessary for him to seek some other employment. The fever has not been observed in the manufactories of France, but only in that of M. Zurimer at Frankfort, and there chiefly in those occupied in pounding the bark. This fever, also, may be so severe as to oblige the workman to relinquish his employment. As yet no prophylactic measures are known; and the temperate and the intemperate would seem to be affected equally. No further particulars are given.

ART. 10.—*On the influence of the Woollen Manufacture on Health.* By J. B. THOMSON, Surgeon to the General Prison, Perth.

(Edin. Med. Journal, June, 1853.)

In 1853 Professor Simpson published a very able and ingenious essay, on 'External Oil-inunction,' in which he endeavors to establish the following propositions, viz:—

1. That the operatives in the wool factories are a healthy class, and that the

oils among which they work undoubtedly contribute to the promotion of good health.

2. That the oils in the factories pass into the system chiefly by the *skin*, and perhaps by *inhalation* also, thereby improving the constitution.

3. That oils rubbed into the skin, or absorbed by bathing, are important remedies for arresting or averting diseases arising from defective nutrition.

4. That singular exemption from epidemic influence seems to belong to all those operative classes much engaged among oils.

5. That external oil-inunction is a cleanly process, and deserves, at least as an adjuvant, to be actively used for the prevention and treatment of scrofula, consumption, etc.

These propositions appear so valuable, that Mr. Thomson is anxious to strengthen the proofs regarding them by the following statements and statistical tables.

There is nothing new under the sun. The virtues of oil externally applied to the human body are noticed as early as the dawn of human history. In the Bible, oil is spoken of as applied to the consecration of the Hebrew priesthood, and for other holy uses, as a type of Divine grace and goodness. It is also praised as an article of value, a luxury, in the same category with one of man's chief blessings: "Wine that maketh the heart glad; and oil, that maketh his face to shine." From the siege of Troy to the fall of Rome, many of the classic poets are found to make reference to oil-inunction. The warrior when he went to the field, the wrestler preparing for the arena, was strengthened by oil-friction and bathing—"non olivum vitat;" and the gods and goddesses anointed with fragrant oils, to grace the festivals and ambrosial feasts of Olympus. Nor have the philosophers been silent upon this. Seneca practised oil-bathing; Pliny says, "The human body receives vigor and strength from every kind of oil." Democritus, when asked upon the subject of health and long life, answered with a common maxim of the day, similar to the Scripture expression already quoted, "Apply wine *within* and oil *without*." And one of our own sages, the brightest in what may be styled our Augustan age—Lord Bacon—says, "*Beyond every agent for prolonging life, I know not any equal to the external application of oil to the human skin, 'ante omnia usum olei vel olivarum vel amygdali dulcis ad cutem.'*" Stronger testimony for any remedial agent cannot be gathered anywhere. And it is curious that the moderns should completely have forgotten a substance so highly sanctioned by antiquity.

With extensive opportunities, during seventeen years, while acting as certifying surgeon to the woollen factories of Menstrie, Alva, Tillicoultry, Dollar, and Glendevon, Mr. Thomson's observation has been directed a good deal to the effects of oil upon the operatives. As far back as 1840, he draws attention to "*The influence of the Woollen Manufactures on Health*;" and with the views set forth in that paper he has had more and more reason to be satisfied; no fact connected with the medical topography of this district is more manifest, than the thriving appearance and great exemption from disease of the woollen factory workers, especially children and young persons. It is quite proverbial among the people, and plain, to the workers themselves, that weakly children, in a very few months after entering the factories, exhibit a marked improvement in physical appearance. The testimony of the certifying surgeons from Galashiels, Hawick, and Alloa, corroborates this statement. In rural districts this is notably the case, and in Glasgow and Aberdeen the contrast betwixt the cotton and wool workers is attested, in favor of the latter, by the factory inspectors and certifying surgeons. In Yorkshire, the better classes frequently send the delicate members of their families to the woollen mills for the benefit of their health.

Admitting the proof to be unquestionable, that the persons employed in the woollen factories are a healthy class, we naturally inquire, whence this salutary effect? And the use of oils being that which peculiarly marks this kind of labor, we are led to conclude, that in some way or other *the bodies of the workers are improved by the oils among which they are constantly employed*. In some of these mills, and at certain oily processes, the young persons appear as if literally dipped in oil, and merit Burns' epithet of the "*creeshie nations*."

In proof of the efficacy of the oil, the author hopes to prove that those engaged in the *more oily* processes of the factory are the most healthy, and increase in weight more than the others.

Table No. I shows some instances of remarkable increase in weight in three months among what are called *piecers* and *feeders*, who are employed in the *oily* departments. Of these two classes the *feeders* are the *more oily*. This table shows the weights of 100 young persons, from 13 to 18 years, both inclusive, with their increase after three months in factory (including clothes, except bonnet, shawl, and shoes). The results are:—

Total weights of young persons when first examined, 8515½ lbs.
 Do. do. in 3 months after, 9093½ lbs.
 Total increase in 3 months, 575 lbs.
 Average increase do. 5¾ lbs.

Some very remarkable cases of increased weight in three months appear in this table, as, for example:—

No. 19 gained 12½ lbs.
 32 " 14½ "
 57 " 21½ "
 58 " 15½ "
 74 " 19 "
 20 " 12 "
 92 " 17 "
 98 " 22 "

Increase upon 8 persons (*selected*) } 134 lbs., or nearly 17 lbs. average.
 in 3 months, }

In no single instance was there any declension in weight; and one pauper patient, No. 85, laboring under phthisis, the author recommended to try the feeding; even he gained 2 lbs.

Table II gives a comparison betwixt the *piecers* (less oily) and *feeders* (more oily), with their increase. The result is:—

Sum of increase on 18 feeders, 119 lbs.
 Do. do. 18 piecers, 103 lbs.

The difference in favor of the feeders is 16 lbs. This is the smallest amount of difference that the author has seen from any former comparison, and the numbers should be tried on a more extended scale. Not long ago he weighed 20 feeders and 20 piecers, and the result was about 50 lbs. more in the sum of the weights of the feeders than the piecers.

Table III is a further analysis of Table I, with the ages, sex, numbers, average weights and increase in 3 months (excluding minute fractions).

Table IV gives a comparison of Young Persons' Weights, in Cotton and Woollen Factories and not in Factories:—

Ages.	In Cotton Factories.		In Woollen Factories.		Not in Factories.	
	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.
13	71	73	79	80½	75	72
14	76	83	81	86	78½	83
15	88	87	96	100	86½	93
16	97	95	...	99½	110	90
17	104	100	98½	127	117½	102
18	105	106	...	134	126	121

The persons referred to in these tables were all taken indiscriminately from large or small factories, and without any selection.

Of Table I, showing the weight of 100 young persons, it is remarked, that the young persons were weighed with their clothes on, after taking off caps, shawls, and shoes, or any article of clothing that could be readily thrown off.

M. Quetelet averages the weight of clothes of different ages at one-eighteenth of the whole weight in males, and at a twenty-fourth part in females. This table indicates that after the age of 13 the development of growth and the average increase in weight are in favor of young females. Table III, in which the averages of boys and girls are given, shows this difference between the sexes.

Table IV is remarkable, as it shows a very considerable greater weight at all ages in the woollen factory operatives; and this is especially notable in young women after puberty. For example:—

Table V.—Weight of Girls.

Ages.	In Cotton Factories.	In Woollen Factories.	Not in Factories.
14	83 lbs.	86 lbs.	72 lbs.
15	87 "	86 "	83 "
16	95 "	99½ "	90 "
17	100 "	127 "	102 "
18	106 "	134 "	121 "

The difference here may perhaps be explained by stating, that in this district all boys and girls pass their time in the woollen mills, from the ages of 13 to 17 or 18; and these remarkable weights may be partly owing to the oil-absorption of four or five years' continuance. It is probable also that the subjects weighed from the cotton mills, and those *not* in any factory, were taken from the humbler classes, who were but scantily fed. The weights of the cotton-factory children, and those not in factory, are from tables by Mr. J. W. Cowell and Mr. Horner, got at the Lancashire factories, chiefly in the towns of Manchester and Stockport, from which it certainly does appear that the cotton labor is unfriendly to the bodily development; whereas the opposite seems to be the case with woollen labor.

Being curious to compare these weights with those of Dr. Forbes' tables of the weight of students, read to the Royal Society of Edinburgh, a comparison is subjoined.

Ages.	Weight of Students.	Mean weight of Boys and Girls at Woollen works.
15	112 lbs.	98 lbs.
16	125.5	99½
17	133.5	113
18	139	134.5

Although the wool-factory young persons excel the cotton operatives, and are singularly healthy and well-developed, it could not be expected that they should cope with university students, who are generally fresh from the country, and fully as well-conditioned in all respects as any class of the Scottish population. The weights, as above, by Dr. Forbes, moreover, were taken with the dresses, which no doubt would be heavier than those of the barely-clad factory operatives, and therefore some allowance must be made for the difference. Besides, the author took off any clothes that could be dispensed with, of which precaution there is no similar statement made by the professor.

ART. 11.—On the dangers attendant on the Jewish rite of Circumcision.

By Dr. WM. MACKENZIE, of Glasgow.

(*Dublin Med. Press*, June 9, 1853.)

It would appear that Dr. Levit, a German Jewish physician, on a recent occasion, has refused to have his child circumcised, on the ground that circumcision is a severe injury, dangerous to the life of the infant, and which has been known to prove fatal. The subject has been taken up by Dr. Joseph Hirschfeld, who maintains the Jewish rite of circumcision, as performed on infants, to be "in no manner dangerous, much less fatal." The fact is, however, that the dangerous hemorrhage which is apt to follow circumcision in infants is a subject to which the attention both of the profession and the state has been often directed in Germany, and especially in Prussia, and which it is vain to gainsay.

Dr. Spiritus, of Solingen, in a set of 'Surgical Observations,' published in the 4th volume of Gräfe and Walther's *Journal* (Berlin, 1822, p. 292), states, that undoubted instances had occurred of Jewish infants having died in consequence of circumcision unskillfully performed, and that the attention of the Prussian government had been directed to the subject by the Medical College of Berlin. He mentions, that not only from unskillfulness in the operation, but also from abnormal distribution of the bloodvessels of the prepuce, circumcision might be attended by dangerous consequences, as he had himself witnessed. He was sent for, he says, to visit the new-born infant of a Jewish family, and warned that he must make haste, lest his assistance might be too late, as the child, which had just been circumcised, was bleeding to death. On his arrival he found the assembled family, the rabbi with the rest, in the greatest distress, as neither he nor a surgeon who had been called, had succeeded in stopping the blood, which was streaming from the part. The infant seemed near death, pale, its face the color of wax, no pulse, breathing scarcely perceptible, while slight convulsive movements shewed sufficiently that no further loss of blood could take place, if life was to be preserved. Besides cold water, various other means had been tried to stem the bleeding, including a black powder, the composition of which Dr. S. did not learn, but which the rabbi carried with him for such accidents, and to which he ascribed the power of stopping even the most violent bleeding. Dr. S. immediately cleaned the wound, and ascertained that the blood was spitting from many small arterial branches. He covered the wound with a thick layer of colophonium, a remedy which he had heard highly recommended as a styptic by Ackermann in his 'Surgical Lectures,' and which consists of the black substance left from the distillation of resin, reduced to powder. The bleeding stopped immediately, and the child was saved. Had another quarter of an hour elapsed, without Dr. Spiritus's assistance, he had certainly perished. The doctor concludes, by holding that this case might recall the attention of the medical police to the subject. Who knows, says he, how often such serious bleedings occur from circumcision, which, if not immediately fatal, may lay the foundation for future bad health? Oftener, too, than is generally thought, he believes extraordinary distributions to occur of the bloodvessels of the prepuce.

Dr. Goldmann, a Hessian physician practising at Schotten, communicated a paper on 'Hemorrhage after the Circumcision of Jewish Infants,' in the 13th volume of Gräfe and Walther's *Journal* (Berlin, 1829, p. 201). He was led to do so, he says, from reflecting on the frequency of irregular distribution of arteries, the occasions thereby caused of violent bleedings in operations, the serious import of circumcision when performed by persons unacquainted with anatomy and surgery, and his own experience of the dangers sometimes attendant on this operation.

Mr. L—, a healthy man, by his wife, an equally healthy woman, had had two, if not three, male children, who had died in consequence of circumcision. Another pregnancy occurring, both parents, disconsolate for the loss of their offspring, and the manner of their death, were hopeful of a daughter, that they might not be left altogether childless. This hope was disappointed, the mother being again confined of a healthy strong boy. Whether the sight of this child caused more joy or fear to the parents, it was difficult to say. According to the Jewish law, circumcised he must be, and certain death seemed likely to follow.

In the greatest affliction, the father came to Dr. Goldmann, asking his advice, and stating that he had already engaged another circumcisor, from a distance. Dr. Goldmann advised that the child should not be circumcised on the eighth day, but some time later, when he might be present.

Some fourteen days afterwards, when the artist from a distance had arrived, Dr. Goldmann was called, and after having made ready everything likely to be required in case of hemorrhagy, the operation was done in his presence. The circumcisor was pretty expert at the business, and the operation was effected, bloodily indeed, but satisfactorily.

Dr. Goldmann laid the infant on a bed placed on a table, in a good light, so that he might see whatever happened. Scarcely had some minutes elapsed,

when he found the child swimming in blood, pale, and its extremities cold. The child had just before sneezed, which perhaps set the bleeding agoing. Dr. Goldmann found the blood to come from a small vessel of the prepuce by the side of the penis. He immediately applied cold water to the wound, wrapt the child in warm cloths, and gave him some warm drink. The bleeding was obstinate, but he persevered with the cold application, and the result was successful; the blood was stayed, and the child saved. He was convinced that without his presence the child had certainly bled to death; for all averred that the bleeding in the other children had not been so violent, only from the length of time lost in trying various means supplied by the circumcisor, and other remedies of their own, a fatal termination had ensued.

About half a year afterwards, when Dr. Goldmann visited the same district as vaccinator, he saw and inoculated this child. He had grown bulky, but his face was pale and tumid, his flesh flabby, and, on the whole, he was in a weakly state, probably in consequence of the loss of blood at his circumcision.

In the course of another year, Dr. Goldmann delivered with the forceps the wife of a brother of M. L—, the father of the child whose case has just been related, of a healthy boy. He made the father aware of the danger of circumcision, and, taking into consideration the fate of his brother's children, advised him, not only to put off the operation till the child was older and stronger, but also to let a physician or surgeon be present when it was done.

Whether it was the thought that so many Jewish infants were circumcised without harm, or to save expense, the doctor's advice went for nothing, and the child was circumcised on the eighth day, M. L— being godfather. The operation was finished, and as violent bleeding began, the application of cold water was had recourse to, without calling in a medical man. This means proved a disappointment; the bleeding continued. It was now proposed by some one present to apply horse dung. The consequence was, that the blood was no longer seen, but the infant became every moment paler and weaker, till at length it became evident that the horse dung merely absorbed, but did not stop the blood.

Summoned in great haste, Dr. Goldmann found the child completely blanched, the eyes dull and half shut, lips and nails white, twitching of some of the muscles of the face, no sensible respiration, no pulse, only extremely feeble and intermitting pulsation of the heart; hands and feet and whole body cold, this being the effect both of the weakness and of the exposed state of the child, and the inconsiderate application of ice-cold water.

After an actual mountain of horse dung, covering the whole region from the mons veneris to the perineum, and from the one trochanter major to the other, had been removed, a stream of blood was seen running along the raphe. The parts being cleaned with a sponge and warm water, a discharge of bright-red blood, *per saltum*, showed a divided artery near the frænum to be the source of the hemorrhagy.

Dr. Goldmann immediately tied the bleeding vessel, and thus removed all danger of further bleeding, but not of death. The infant lay as if dead, an extremely feeble action of the heart being the only sign of life. The wet, cold coverings were immediately removed, and the child wrapt in warm cloths. Dr. Goldmann rubbed him with ammonia and spirit of camphor, while the rabbi administered a few drops of warm wine. In half an hour the natural temperature began to return, with some degree of perceptible respiration. Laid in his cradle, he fell asleep; the wound was examined frequently, and a teaspoonful of strong chicken broth or warmed wine was given at intervals. Thus was a life saved, of which every one present, and even Dr. Goldmann himself, had almost despaired.

Dr. Goldmann saw this child again when he was to be vaccinated, and found him not only pale and flabby, but, on the whole, his growth not such as he should have foretold before his circumcision.

The view entertained by Dr. Spiritus and Dr. Goldmann, regarding the dangerous hemorrhage which occurred in the cases, of which the above is an abridged account, was, that it arose chiefly from anomalous distribution of the arteries of the prepuce. These arteries are in ordinary circumstances derived

chiefly from the dorsalis, but partly also from the profunda penis, branches of the internal pudic which anastomose with twigs from the external pudic, a branch of the femoral. No arteries of the body are more apt to present anomalies in their distribution than the pudics, internal and external. The arteries of the prepuce frequently present irregularities in source, course, and distribution; and, as seems to have been the case in one of Dr. Goldmann's patients, they are often much larger on the one side than on the other. That such irregular distributions of the arteries may give rise to extraordinary bleeding after circumcision, seems extremely probable.

In those children who partake of what is termed the hemorrhagic diathesis (a hereditary constitutional condition of the blood and bloodvessels, rendering bleeding from the smallest wound almost uncontrollable), circumcision must be attended with the utmost danger, if it does not prove always fatal.

On the effects likely to be produced on the nervous system of the infant, by tearing up the lining membrane of the portion of the prepuce which is left with the finger nail, as described by Dr. Hirschfeld, and on the likelihood of its leading either immediately to tetanus, or in after life to other convulsive attacks, as is hinted by Dr. Goldmann, I think it unnecessary at present to dwell.

On the whole, the doctrine of Dr. Hirschfeld, that the circumcision of infants is "in no manner dangerous, much less fatal," seems sufficiently refuted by the facts recorded by Dr. Spiritus and Dr. Goldmann.

ART. 12.—*On a recent Epizootic among Swine in America.*

By Dr. GEORGE SUTTON.

(*North American Medico-Chir. Rev.*, May, 1858.)

For some time past a most serious epizootic has been prevailing among the swine in the States of Illinois, Kentucky, Indiana, Ohio, New York, Massachusetts, Pennsylvania, and Maryland, and this Dr. Sutton has set himself to investigate in a very elaborate and satisfactory manner. At first he thought the disease was a malignant form of measles, but the public gave it the name of cholera—"hog-cholera"—from the diarrhoea and the rapid manner in which in many instances it proved fatal. Swine inoculated with the blood of diseased animals contracted the disease; and other experiments, instituted by Dr. Sutton, showed that the disease, when once produced, was capable of spreading rapidly by infection. Dogs, also, which were chained near the infected sties and fed with the diseased meat, became affected with a similar disease; but there was no evidence that the men who had to do with the swine, either before or after death, suffered in any manner.

"This disease presents a great variety of symptoms. The hog at first appears weak, his head droops, and sometimes in a few hours after these symptoms diarrhoea commences. There is frequently vomiting. In some cases the discharges were serous and clay-colored, sometimes dark, also bloody, and mucous, resembling those of dysentery. The urine at first was generally small in quantity and high colored, but as the animal recovered it became abundant and clear; this was one of the symptoms by which the men, who were attending the hogs at the distillery, ascertained that they were recovering. In a large number of cases the respiratory organs appeared to be principally affected; there was coughing, wheezing, and difficult respiration. In some instances the animal lost the power of squealing, and the larynx was diseased. There was frequently swelling of the tongue, and bleeding from the nose. In those cases where the respiratory organs were the principal seat of the disease, there was generally no diarrhoea or dysentery. In many instances the disease appeared to be principally confined to the skin; sometimes the nose, the ear, or the side of the head, were very much inflamed; the ear swollen to twice its usual thickness. This inflammation would spread along the skin sometimes over the eye, producing complete blindness. Sometimes one or more legs were inflamed and swollen, and the inflammation also extended along the body. The skin, where it was inflamed, was red and swollen. Some had large sores on their flanks or sides, from three to six inches in diameter. In one instance, at the distillery, the inflammation extended along the fore leg, the foot became ulcerated and

sloughed off, and the animal recovered. Some appeared delirious, as if there was inflammation of the brain. I examined the blood of four hogs which had this disease well marked; they were stuck, and the blood, arterial and venous, was caught in a bowl. It was cupped and presented a well-marked buffy coat. Death took place in from one to ten days after the attack. Sudden changes in the weather, particularly from warm to cold, appeared to increase the fatality of this disease. The average mortality of hogs that were in pastures or fed on slop, was from thirty-three to forty-five per cent., but it was frequently much more fatal if the hogs were fed on corn—in some instances ranging from seventy to eighty out of the hundred, and in some instances even higher.

"I found, on opening the bodies of hogs that had died of this disease, that they all presented evidences of a diffusive form of inflammation. From sixty-seven hogs that I have examined, I found it was not confined to any particular tissue. Sometimes this inflammation was confined to one organ, in other cases it attacked several at the same time. The skin frequently presented patches of inflammation, and often had a purple appearance. In cutting through parts that were the most inflamed, the skin was swollen, and the cellular tissue was infiltrated with serum. Frequently, however, the skin was merely discolored, without any swelling whatever. The stomach was occasionally distended with food, and the mucous membrane in nearly every instance presented evidence of inflammation, sometimes extending over the whole stomach, at others only in patches; it was generally of a deep red color, thickened, and frequently softened. Sometimes it was covered with a viscid mucus, in other instances there was an effusion of blood into the stomach. The mucous membrane of the small or large intestines, where there had been diarrhoea or dysentery, presented in all instances evidences of inflammation; in patches it was red, thickened, sometimes softened, and occasionally ulcerated; where there had been dysentery there was generally bloody mucus found in the large intestines. The bladder generally contained urine; sometimes its mucous membrane was inflamed, and in one instance there was an effusion of blood into this organ. In a large number of cases I found evidences of peritoneal inflammation, such as redness of this membrane, effusion of turbid or bloody serum, adhesions between the intestines, and between the intestines and sides of the body. In three instances blood was effused into the peritoneal cavity—in one instance more than a quart; it appeared in this case to come from the liver. The liver was occasionally the seat of this inflammation, not only in its inverting membrane, but the parenchyma; sometimes there were abscesses, and in one instance portions of it were gangrenous. The lymphatic glands were generally of a dark red color, frequently resembling clots of blood. This disease of the lymphatic glands was of common occurrence.

"The lungs were frequently the seat of this inflammation, portions of one or both presenting different appearances, from simple congestion to complete hepatization; sometimes there was ulceration, and frequently there was a turbid, or sero-purulent, or bloody effusion into the pleural cavity; sometimes there were extensive adhesions between the lungs and pleura of the ribs. At first I was inclined to believe this malady to be a form of pleuro-pneumonia, but after I became better acquainted with it, I found that the inflammation was not uniformly confined to any organ. In a number of instances the mucous membrane of the bronchia was deeply inflamed, and the inflammation extended to the trachea and larynx. In several instances the larynx was inflamed, resembling laryngitis. One animal that had great difficulty in breathing, and could make no noise, I had knocked on the head, and on examination, I found the mucous membrane of the larynx and epiglottis inflamed and swollen; also the tongue was swollen. There was evidence in several instances of pericarditis, which had produced adhesions between the heart and pericardium. The brain, from the difficulty of opening the skull, was examined only in one instance; it was found healthy, although I feel confident it was frequently the seat of the disease.

"From these examinations we see that it is a misnomer to call this malady cholera. It is a contagious inflammatory disease, the inflammation being confined to no particular tissue, sometimes attacking only one, and at others,

several in the same animal. Evidences of this inflammation were found in the dermoid, the cellular, the serous, the mucous, and glandular tissues. I consider it a diffusive form of inflammation from the manner in which I have witnessed it spread along the skin. In one night I have seen it extend from the eye to the ear—the ear becoming inflamed and swollen. Although we have not been able to show that this is a cholera epizootic, still the facts elicited may be of interest, and remove doubts at some future period. But, then, if this malady does not resemble cholera, does it resemble any of the diseases to which the human system is subject? I think not. Like the specific eruptive diseases, it is highly contagious; the infection has a period of incubation of from twelve to twenty days, and one attack appears to exempt the animal from a second. But in this disease, although petechia and an eruption may appear on the skin, its principal characteristic is a diffusive form of inflammation, which may attack nearly every tissue and spread like an erysipelas. But then, again, it differs from this disease, as it is well known that in erysipelas one attack does not exempt the system from a second; and although erysipelas may be contagious, still it is doubtful whether the period before the eruption shows itself is so uniform as in this disease; and while erysipelas is generally confined to the skin, this inflammation most frequently attacks the lungs and mucous membrane of the alimentary canal. This disease appears to be intermediate between the specific eruptive diseases and erysipelas—partaking of the nature of each, and probably not having its exact resemblance among the diseases to which the human system is subject.”

(B) ACUTE DISEASES.

ART. 13.—*On the theory of Inflammation.* By MR. JAMES HINTON.

(*Medico-Chir. Rev.*, July, 1858.)

All writers on inflammation have recognized in it processes of two opposite characters and tendencies. Mr. Paget classifies them into those that are productive, and those that are destructive, and the distinction is broadly obvious. Into the ordinary conception of nutrition itself indeed both these processes enter; it is regarded as including two opposite actions or series of changes—growth and decay. But this oppositeness of action is even more marked in inflammation than in health. In an inflamed part we may see a structure decomposing, not in invisible molecules, or by mere interstitial removal of its elements, but dying in large masses, while all around it the evidences of *vital* action, of the impetus towards growth, are seen in more than ordinary energy. Is there any intimate relation between these opposite actions; may inflammation consist in either alone; or, if both be essential, what is their connection?

That an increase of both processes, the decay and the vital action, is necessary to constitute inflammation, appears when we consider the distinctive characters of that affection. It differs from mere increased decay, as primary gangrene or atrophy, on the one hand; and from mere increase of vital action—hypertrophy, repair, or development—upon the other. Its peculiar characters involve at once an abnormal increase of destruction and of growth.

If, then, both these changes be essential to inflammation, can there be traced between them any other connection than that of co-existence? Are they related as cause and effect? Which is the starting-point of the morbid process?

The answer is, they are related as cause and effect; the increased decomposition is the starting-point; the increased vital action is secondary and dependent.

The first proof of this position is found in the nature of the causes by which inflammation is induced. All of these, it has often been remarked, are such as clearly tend to lower the vital power or to produce actual destruction of the parts on which they act. In every case in which the origin of inflammation is distinctly traced, the starting-point is found to be in fact an anti-vital change.

And this practical evidence is reinforced by the most cogent theoretical considerations. Can we represent to our thoughts any clear idea of a primary abnormal increase of the *vital* or formative action that should be inseparable, as

inflammation is, from a concurrent increase of decay? And this increased decay not such as attends and is subservient to increased growth, but of so disproportionate an amount as almost always to result in a lessened vitality of the affected part. Is it not a contradiction, that an approximation to death should be the result of an increased life? It is not inquired now how such a primary increase of the formative action should arise, and especially in such circumstances of debility and oppression as most favor inflammation, because that subject will be considered hereafter in tracing the relation between inflammation and adventitious growths; but there is a direct bearing on the question in the fact that inflammation arises in the tumors then first when decay begins in them. It is incompatible with the increased formative action which produces them; it is a constant attendant on their disintegration.

Connecting thus the two series of changes, destructive and formative, as cause and effect, both may be understood. For the increased formative action some cause is demanded, some additional and locally acting force to which it may be ascribed. This demand is fulfilled by the increased decomposition, which is a known source of force, and which is itself sufficiently accounted for by the tendency of all organized substances to undergo decay. The abnormal decomposition is referable to known and sufficient causes, and itself supplies a cause for the abnormally increased activity of the formative process. For not only is decomposition of the tissues (a change belonging to the class of chemical actions) a recognized source of force as such, and thus capable of acting as a stimulus upon the vital activity of adjacent tissues, but it is shown by well-known facts to be immediately concerned in the production of the formative action. Such facts are the liquefaction of certain portions of the embryo as conditions for the development of other portions; the decomposition of the food which forms the first stage of digestion; and especially the immediate dependence of the nutrition of any organ upon its functional activity.

Inflammation indeed stands thus but as an exaggerated instance of this normal relation of decomposition and growth; it is strictly correlated to the ordinary processes of life; an abnormal or excessive functional or decomposing change, producing a similar excess of the reparative action. It may seem strange indeed how so natural an interpretation of the facts should have escaped the sagacity of those observers who have especially noticed the intimate connection between functional activity and inflammation, and who have remarked that excessive function of an organ leads to or becomes inflammatory action by such continuous gradation that the line cannot be drawn between them.

Inflammation is excessive function, with or without qualitative perversions; common in the absence of such perversions, *specific* when they exist. The term "function" is here used to signify that disintegrating change of which the functional activity is an indication. In attributing inflammation to an excess in this respect, nothing is assumed but a known tendency, the chemical affinities, which may always be presumed to act when not prevented by opposing force, or absence of the requisite conditions; and which are therefore necessarily brought into play by all that diminishes the perfection of the vital state. From the operation of these forces all the main phenomena of inflammation may be traced in a consequent series, and no recourse is necessary, as upon the hypothesis of a directly increased vital action, to mysterious, or at least to unknown, powers.

The twofold nature of the processes concerned in inflammation has been one chief source of the difficulty that has invested the subject; these processes not being seen in their true relation, not recognized as corresponding, in respect to that relation, to the healthy life. Two opposite views have been maintained by different writers, each with great support from observation, yet each failing to supply a theory of the affection that could be accepted as complete, or as applicable to all cases. On the one hand is the theory of "increased action;" on the other, that of "debility," or diminished vital force. Each reposing on one portion of the phenomena, with an insufficient recognition of the other, and embarrassed, therefore, instead of aided, by half of the facts with which it had to deal; each capable of a most plausible demonstration, yet leaving in the

mind a painful consciousness that the problem was not solved, nor the true nature of the disease revealed. The old theory of increased action* demanded as its complement the modern one of debility or diminished action; but the latter, though more philosophical, equally fails to express the whole truth, and had it existed first, would not less certainly have been supplemented and supplanted by the one whose place it has usurped. If inflammation be in all cases merely diminished action, "depression of the vital force," what is the distinction between sthenic and asthenic inflammations? why should stimuli be in some cases useful, in others injurious? Would not the term "diseases of debility," become then mere pleonasm, while yet we cannot but feel that it does express an actual and most important distinction between classes of disease which may be both alike inflammatory? And are not greater heat, more rapid circulation, a more vivid sensitiveness, among the indications of a higher life by which the warm-blooded animals are elevated above the cold-blooded? Shall we, to make a theory consistent, permit contradictory interpretations of identical phenomena?

It is not denied that inflammation is, in one sense, always a disease of debility; that is, its starting-point is anti-vital change, it originates in decay; but it includes not less an opposite class of actions, the downward process generates an upward one; decomposition adds intensity to life.

The inflammatory process, then, is an affection primarily due, as all functional processes are, to a disintegrating change which generates a formative process that would not else exist. Thus viewed, inflammation may not only be better understood in itself, but may be brought into definite and intelligible relations with a wide circle of kindred phenomena, mutually giving and receiving light. At first, as to its own nature, it is found to bear a distinct and decisive character. It may be defined. The boundary which separates it alike from health and from other morbid processes is distinct and legible. From health it is distinguished in this, that it is an excess or perversion of the functional activity, with its consequences; the decomposition which is normal in function exceeds in inflammation that amount which is compatible with the integrity of the tissues.

And from other local diseases it is clearly marked by these characteristics—of involving a twofold action, and of starting from a decomposition. Tumors may present the twofold action of growth and decay, but the growth in their case has precedence. Hypertrophy presents increased formation only; atrophy, diminished formation, and probably diminished energy of decomposition also. Degeneration, properly so called, if agreeing with inflammation in having increased decomposition for its starting-point, differs from it in the absence of the vital reaction; as also does primary gangrene, though the latter is a cause of inflammation in the surrounding parts. It seems to me that the difficulty, on which so much stress has been laid, of indicating precise lines of demarcation between inflammation and other affections, does not exist if the case be rightly conceived. That various abnormal processes may coexist is true, but there is no necessary confusion among them. Where a local decomposition, carried beyond the bounds of the normal functional activity, has brought in its train abnormal formative action, in however slight a degree, in whatever condition of the system, or with whatever other morbid processes it may be mixed up, there has been inflammation. The relation of the forms of action concerned in the inflammatory process is well seen in the phenomena attending suppuration. For in the formation of pus-cells there appears to be a true growth; and we may conceive that the force arising from the increased decomposition which has previously been operating upon the solid texture, producing in them the heat and redness and swelling which are characteristic of inflammation, operates after the effusion partly on the effused fluid. So that while the dynamical process remains the same, the "symptoms" begin to subside.

* For a most ingenious argument in favor of this view, see a paper by Dr. Cappie, "On the Nature of Inflammation;" *Edinburgh Medical and Surgical Journal*, No. 81, p. 65.

ART. 14.—*On Bleeding in Inflammation.*

By Dr. MARKHAM, Physician to St. Mary's Hospital.

(Medical Times and Gazette, July 10, and Aug. 7, 1858.)

The following is a summary of the conclusions arrived at in these papers:—

1. There is no proof that venesection has any directly beneficial influence over the course of inflammations, either external or internal. Surgeons never bleed now in external inflammations; and physicians have given up all argument in favor of the proceeding, except in the case of pneumonia, and perhaps also of peritonitis. At all periods of medical history, moreover, it has been especially in pneumonia that the benefits of venesection have been most firmly extolled.

2. But the direct abstraction of blood by leeches, &c., from an inflamed part, during the early stages of the inflammation, modifies its course, and materially reduces the most characteristic phenomena of it, viz., the pain, the heat, the redness and the swelling; and the abstraction of blood does this whether the inflammation be traumatic or specific, as we observe, for instance, in the application of leeches to a sprained ankle or to an inflamed joint. There is, therefore, a marked distinction to be made between venesection and local abstraction of blood.

3. Local abstraction of blood, however, cannot produce the same beneficial results in the case of internal inflammations, except in those instances in which we are thereby able to draw blood directly from the inflamed part. Leeches applied to the thorax cannot draw blood directly from the inflamed lungs; when they appear to be of service in pleuro-pneumonia, they are so by drawing blood from, and so reducing the inflammation of, the parietal pleura. In endocarditis, again, direct bleeding (over the cardiac region) is useless; in pericarditis it is of great service, because thereby blood can be drawn directly from the inflamed pericardium and pleura.

4. Venesection, where properly used, is of great service, incidentally, in pneumonia. There is a peculiarity in the circumstances attending this inflammation, which causes it to differ from all other internal inflammations; and this peculiarity consists in the mechanical effects—the congestion of blood in the heart—produced by the inflammation. The bleeding relieves this congestion, it has no directly beneficial influence over the inflammatory process. It serves exactly the same end in pneumonia as it does in the congestions, which result from wounds of the lungs, diseases of the heart, aneurisms, and all those affections which produce great and sudden congestion of the organ. Army surgeons bleed largely and at once in wounds of the lungs, before the inflammation sets in.

5. The use of venesection, therefore, in pneumonia, is to relieve the cardiac congestion which is produced by the impediment to the circulation of blood through the lungs; it neither arrests nor modifies the inflammation. And the corollary of this is, that venesection is frequently required during the progress of pneumonia, and many other diseases, for the object indicated.

6. It is not denied, by anything here stated, that local bleeding in the inflammation of internal organs, where there is no direct vascular connection between the skin and the inflamed organ, may not influence the inflammation by some reflex action conveyed thence from the skin to the vaso-motor nerves of the inflamed organ; but this influence, if it exists, has yet to be demonstrated.

ART. 15.—*On Acute and Chronic Disease.*

By Dr. WELKS, Assistant Physician to Guy's Hospital.

(Guy's Hospital Reports, 3d series, vol. iv. 1858.)

Most of our writers on medicine have hitherto directed their especial attention to acute diseases, making these the types and the forerunners of the numberless changes to which the various organs are liable, looking upon them as the regular forms of maladies in which pathological changes may be best con-

sidered and scientific treatment adopted, while the chronic forms are the irregular, or those which result from the acute; and, showing that such opinions are not rare, we lately heard discussed at a medical society the importance of early treating acute disease lest it should become chronic, the idea being that the body in health is liable to sudden attacks of acute disease, and if the latter be not arrested, a chronic affection is the result. Without denying that this may occasionally be correct, our own experience is so different that if the doctrine were reversed, we believe it would be far nearer the truth—that disease is mostly chronic, and, if not arrested, will become acute. It is, for the most part, an assumption that acute diseases may become chronic, and much more that chronic disease has once been acute, the latter, in fact, in most instances, never having been preceded by an acute affection, the chronic change having been chronic from the commencement, the mistaken notion having arisen from the terms employed having reference to time, a disease at its commencement being considered acute, and after a time chronic; whereas the morbid changes in the two are different *in kind*, being in the latter slow in their commencement and progress, and unaccompanied for a considerable time by symptoms, and thus unlike the former. It has been a habit among us, that when any change has been found in an organ, especially if that be of a fibrous kind, to attribute it to a former inflammation, but this is altogether an assumption, we ourselves having lately seen a cirrhotic lung with an extremely thickened pleura which had been progressing for five years, and which, having watched from the commencement, we are sure never had any acute origin, and yet it was thought by some that such *must* have been; and the same, we believe, is true of other chronic diseases. A slow change of this kind does not result, as was formerly supposed, from an organization of lymph, but is rather allied to a growth, and such is necessarily slow or chronic from the commencement; for example, if the beginning of the process known as cirrhosis in the liver could be appreciated after the first week of its progress, the change would be chronic, although a hepatitis with suppuration might be called acute if the disease had existed for twice or thrice the time.

We have only to regard the various forms of diseases daily before us to recognize how large a number are chronic, and if we are in the habit of examining our patients after death, we shall also discover how many acute attacks are merely the sequel of long-standing diseases. Among the affections of the brain how many are chronic, or dependent on disease in other parts, as softening or affections of the membranes; and if a person suddenly falls with apoplexy, and is by popular expression said to have been cut off in health, the medical man knows that the vessel which ruptured in the cerebrum had been slowly progressing in its morbid changes for at least many months; and as regards acute inflammation of the brain, a large number of cases are associated with tubercles of slow formation, or result from disease of the bone (as of internal ear), except a few instances in children apparently connected with exanthematous disease, we ourselves never having seen but one case which could be styled idiopathic inflammation of the brain, where no anterior cause was found to account for it. On the other hand, acute meningitis is very often the termination of chronic disease of the brain, as when tumors are present, and thus, as we at first said, the acute follows the chronic, and post-mortem examinations reveal to us acute disease as that which is fatal, and which has resulted from the chronic. As regards the chest, no doubt acute disease of pleura or lung does occur in healthy persons from exposure to cold; but to one such case, we witness twenty of these affections occurring in a lung previously diseased, as in phthisis; or if the organ be healthy, the patient is suffering from some other affection, as morbus Brightii; and thus it is, we think that no deductions can be made with reference to the seat of pneumonia or its treatment, from cases taken indiscriminately from the wards of the hospital and from the records of the dead. Without alluding to hypostatic pneumonia (or the pneumonia of the dying), we see at least fifty cases of hepatized lung occurring as a part of other visceral disease to one case of idiopathic pneumonia. Although there are constantly cases of pneumonia treated in the hospital, post-mortem inspection has not revealed a single idiopathic case for more than

a year past; and the same may be said of pleurisy, though to a less extent, as we think idiopathic pleurisy is more common; but even here the large majority of pleurisies are occurring in patients suffering from chronic disease. We will add to this bronchitis, and maintain that acute idiopathic bronchitis is a rare disease. In reference to the pericardium, we may remind the reader that acute idiopathic inflammation of this structure is almost unknown. If then, acute pneumonia and pleurisy occurring in healthy persons constitute the exceptional cases in which such forms of maladies occur, and other acute affections are still more rare, how remarkable it appears for some of our older writers to speak of acute inflammations in healthy persons as typical forms of disease, and those in which the action of remedies is to be studied. In considering the abdomen, nearly all the affections, as witnessed in this country, are chronic; and acute peritonitis, which might be called idiopathic, we have never yet seen. Hepatitis and dysentery are acute in tropical climates, but the changes in the liver, kidney, intestine, &c., as we in our country witness them, are mostly slow. Acute peritonitis in nearly all cases results from some lesion which is chronic in one of the organs which is covered by it, and arises from abscesses bursting into it, or perforations of the hollow organs, or from a local inflammation commencing in an ovary or other part propagating itself throughout the abdomen.

Should acute inflammations arise without a chronic change in this part, there is some constitutional affection implicating the fluids in the body: such as disease of kidney, which is often suddenly fatal by a pericarditis or peritonitis.

The disposition for disease to commence slowly and end rapidly or acutely, is nowhere better seen than in a phthisical lung; towards the apex, where the disease commenced, we see a vomica surrounded by dense tissue, showing the organization and slow process which characterized the commencement of the disease; as we proceed lower down we find deposit of a softer character; still lower down, this resembles the material of gray hepatization, and below this again we often find an acute pneumonia which has carried off the patient.

We do not, of course, in thus speaking cursorily on this subject, refer to diseases dependent on some specific cause or poison which may lay hold of any healthy person, as the exanthemata, but we allude rather to local inflammations, which, according to some of the older systematic writers, were regarded as the most common forms of affections, and might occur in any person; they thought that an arachnitis or pericarditis, or a peritonitis, might from such a cause as exposure to cold, be suddenly lit up in a previously healthy person. Now, we are not aware that we have ever witnessed such a case, these acute affections being merely parts of some more general malady affecting the whole system, or attacking an organ previously diseased. This, as before said, is not altogether true of pneumonia, nor of pleurisy, which are constantly occurring from causes above named, although even these affections arise far more frequently in diseased persons. We may state, then, in general terms, that disease of the various parts of the body is, as a rule, chronic, and that the acute affections are merely terminations of these, or are set up by them. We are quite aware of the objection that observation in the wards and in the post-mortem room is of a different kind, and that the very fact of these remarks having been made on the dead, is sufficient to show that such organic changes could not have existed in those who have recovered. A discussion on this point would too greatly prolong this paper, and, therefore, we will merely state that the proofs of the existence of various diseases during life are slight compared with ocular inspection after death; and therefore if, for example, in every case of fatal peritonitis a prior cause is found to have produced it, we think the arguments are equally in favor of such cause existing in the cases which recover, as that the inflammation is altogether idiopathic. We should have liked, had space allowed, to have entered upon this subject more in detail, and illustrated it by examples; this we hope to do at a future time; at present merely pointing out to those who have not the opportunities of making necroscopic examinations, the result of our observations.

ART. 16.—*On the Changes in the Constitution of Fever and Inflammation in Edinburgh during the last forty years.* By PROFESSOR CHRISTISON.

(*Edin. Med. Journal*, July, 1858.)

During the last forty years, Dr. Christison maintains, there has been a change in the character of the symptomatic fever attendant on acute local inflammation, which will account for so great a change in the treatment as the abandonment of bloodletting.

"Unfortunately," he says, "I am not able to refer to any recorded facts in support of this proposition. But I can conscientiously say, that many years have elapsed since I have made allusion to it in my lectures on 'Clinical Medicine' in this university. And I can, with equal confidence, pledge myself to have formed my present opinion long prior to the first germs of the present controversy, and quite irrespectively of controversial bias of any kind.

"The local inflammations, in which the change in the form of the concomitant fever has principally attracted my attention, have been erysipelas, acute rheumatism, pleurisy, and pneumonia. In all of these diseases, during the earlier period between 1817 and 1830, or a little later, it was customary to find the pulse not merely frequent but also either full, hard, and difficult to extinguish by pressure, or small, wiry, and equally hard to compress. This state of the pulse was likewise attended with more heat of the skin and febrile restlessness than I have been accustomed to observe for many years past. In correspondence with these peculiarities, it was not uncommon to observe the blood issue from the vein, opened for the purpose of bloodletting, with great force, and of an unusually florid color, and occasionally with a certain jerk contemporaneous with the pulse. I have repeatedly seen, at the time now referred to, hospital dressers or other young medical men so much alarmed at these appearances, as to fear that they had cut the subjacent artery, and only relieved upon finding the flow of blood averted by firm pressure of the vein beyond the wound. In no disease was the force of reaction more remarkably demonstrated by these phenomena than in acute rheumatism. I well remember that in my experiments on the changes produced by the air in the blood, performed in 1830 (See '*Edinburgh Medical and Surgical Journal*,' xxxv, 94), I was repeatedly unable to use for my purpose venous blood taken from rheumatic patients, on account of its color being too little removed from that of arterial blood, to show the change of hue caused by agitation with air.

"The character of the pulse, which I principally miss in the present time, is its incompressibility, which was a constant object of attention and interest during the fashion of bloodletting, and by which, far more than by the mere frequency or fulness of the pulse, the question of bloodletting and its amount were regulated. Those who have not had occasion to observe this phenomenon in acute local inflammation, will understand what is meant, if they have ever attended carefully to the condition of the pulse in some forms of sudden, violent, brief apoplexy, in which, after a short stage of great depression and irregularity, the pulse, gradually rallying, becomes at length almost painfully full and bounding, and so hard to compress that scarcely any force, with the finger's point, will completely extinguish it.

"As inflammations, with this accompaniment, continued to advance in spite of bloodletting; or, when it had been neglected, the condition of the pulse gradually altered, until at length it acquired the same comparatively soft and easily compressible character which is observed to be its ordinary condition at all stages in the present time, as well as for some years past. Now, it is important to remark, that as soon as the pulse put on this altered condition in the advanced stage of inflammation, every medical man practised bloodletting with far greater caution; and I could show, by notes I still possess, of the case of a brother graduate whom I treated at Paris in 1821, in rather remarkable circumstances, that I at least was at that time fully aware of the danger of bloodletting in pneumonia in such a state of the circulation.

"If in those days physicians were aware that the acute local inflammations might, in their course, present characters which contra-indicated bloodletting,

it does not appear a very violent assumption, that, if they observed those characters presented at the beginning instead of the advanced stage, they would hesitate to draw blood, and at length, as this character became more and more manifest, abandon it in a great measure, and such I apprehend is the real history of the modern change of men's minds as to the employment of the free evacuation of blood in the acute inflammations.

"An attempt has been made to ascribe the change—1. to an improved acquaintance with the phenomena of pneumonia as one of the leading acute inflammations—the consequence of the use of the stethoscope—and 2. to our acquaintance with the antiphlogistic properties of tartar-emetic. Both arguments are baseless. Acquaintance with the stethoscope will not explain the abandonment of bloodletting in other inflammations besides pneumonia and pleurisy; and yet the remedy was surrendered in all acute inflammations, about the same time. Besides, it is altogether a mistake to assume, that the stethoscope came into familiar use in Edinburgh, and more especially among the medical officers of its infirmary, only about the time when bloodletting began to fall into desuetude. Several practitioners of this city had studied long before that date under Laennec himself; one of these was physician of the infirmary so early as 1827; and others besides him used the stethoscope with as much address and familiarity at that period as any of their successors have done since.

"As little can it be admitted, that professional men of this city have been acquainted with the merits of tartar-emetic as an antiphlogistic remedy only since it began to displace bloodletting in the treatment of pneumonia. The use of tartar-emetic, as an antiphlogistic in local inflammation in British practice, is of much older date; when I was a young graduate, it was a familiar remedy in the advanced stage of pneumonia, and was used by myself as the acknowledged resource, and with prompt and excellent effect in the case of pneumonia referred to above in 1821; and as for Laennec's plan by large, frequent, contro-stimulant doses, it was employed in the clinical wards by my predecessor, Dr. Duncan, who died in 1832, and likewise by myself and others some years earlier than that date.

"I feel persuaded, therefore, that the more this interesting subject is investigated, and the more that the personal experiences of those who practised medicine between 1817 and 1830 is brought to bear upon it, the more will it appear manifest that a change to a mere asthenic character has gradually taken place since that period in the febrile condition of the circulation attendant alike upon continued fevers, eruptive fevers, and the acute local inflammations; and the more will it appear probable that this change has been the real cause of the change which has taken place in medical opinion and practice as to their treatment."

ART. 17.—*General considerations respecting Fever.*
By DR. HANDFIELD JONES, Physician to St. Mary's Hospital.

(*Brit. Med. Journal*, Aug., 1858.)

In the following propositions and remarks, an attempt is made to take a general view of the principal phenomena of the febrile state, regarding their pathology from the point of view so well indicated by Parkes and Virchow. The author is far from imagining that we have yet any complete and satisfactory theory of fever; but he cannot think that any one can have any just conception or enlarged view of the pathology of fever, who ignores the capital facts so well elaborated by Bernard.

"1. Fever may result from pure nervous exhaustion. I am acquainted with two medical men who have suffered attacks of fever, to all appearance, in consequence of fatigue in walking. In such cases, it may be presumed that the sympathetic system has become affected, as well as the cerebro-spinal.

"2. The nervous power of the cerebro-spinal system may be extremely depressed without fever being induced.

"3. Paralysis of the vaso-motor (sympathetic) nerves is probably essential to all fevers.

"4. In the majority of fevers, the nervous power of the cerebro-spinal system is greatly debilitated or impaired.

"5. In all varieties of asthenic fever, debility and depression predominate. They may be more marked in some organs than in others, and may be variously combined with degrees of irritation; but still they give its character to the disorder.

"6. All debilitating influences, in their less severe degrees, tend to produce a state of irritability; in their more violent action they cause prostration. The character of irritability is weakness, together with an undue sensitiveness to all stimuli. In such states, there is often a great display of force ('increased action'); but it is to be remembered that this takes place at the expense of the *radical** forces of the economy, which are drawn upon for the excessive development of the *acting*. Wild delirium and increased energy of circulation can only occur at the expense of the real power of the brain and heart.

"7. In the sthenic and inflammatory fevers, the heart's action is excited and increased in force, as well as in frequency. The cause of this may be presumed to be, that the blood, being hotter than natural, stimulates the heart unduly. The place of the heart in the vital economy, its highly developed structure, its peculiar power of not knowing fatigue, unlike other muscles, afford sufficient reason why it should be stimulated to increased energy of action, while the arterial muscles are more or less relaxed or paralyzed. It has a higher responsive faculty. At the same time, the tissues of the body generally are not so much debilitated as in asthenic fever.

"8. The causation of pyrexia attending on local inflammations may be viewed as follows. The blood traversing the inflamed part becomes altered in some way (perhaps by having an increase of fibrin generated in itself), so that it comes to contain matter, which may be compared to the miasm of fevers (idiopathic), like it producing irritating and debilitating effects. This view, which is Andral's, is adopted by Mr. Erichsen and Dr. Markham.

"9. It may appear a contradiction to the above statements, that, in the more sthenic idiopathic fevers, and in certain pyrexia attending on inflammation, especially in the case of serous membranes, the radial artery is not paralyzed, but rather contracted; the pulse is hard or wiry. This would not certainly prove that the swollen arteries are in the same state, but let it be granted that it does. Observations of the results of dividing the sympathetic nerve in the neck shows that relaxation of arteries and increase of temperature are not inseparably connected. The hyperæmia which ensues after the operation diminishes considerably in a day or two, though the elevation of temperature persists. Moreover, in repeating the experiment upon a cat, I found that the temperature became greatly elevated, without the existence of much apparent hyperæmia. It certainly did not appear that the increased heat could be accounted for by the hyperæmia. It is Bernard's opinion that the temperature is not augmented solely in consequence of the part lying in the range of the paralyzed nerves receiving more blood, but that there is actually an altered state of the nutrition of the part. Brown-Séquard and Walter, on the other hand, ascribe the increased temperature solely to the increased afflux of blood. The circumstance that the temperature of the side operated on is sometimes 2° or 3° Fahr. higher than that of the internal parts is materially in favor of Bernard's view. So are also the phenomena of phlegmasia dolens, and some analogous *white inflammations* (as Dr. Graves calls them), in which at the same time that there is swelling and increased heat, the pallor certainly indicates that the arteries are constricted. In some cases it may be that the vaso-motor nerves are so affected, so debilitated, that increased heat is produced by the derangement and hurry of the nutrition-processes, while yet the arterial muscles retain power enough to be stimulated to contraction by the overheated blood. Their contraction, then, might be explained in the same way as the increased action of the heart.

"10. The accelerated action of the heart in fever (*i. e.* the increased rapidity,

* For remarks on this important distinction, see Trousseau, '*Materia Medica*,' vol. i. p. 42.

not force, of its contractions) may very plausibly be explained by considering the medulla oblongata or pneumogastric nerve to be in a debilitated state. It is not indeed so fully established that section of the pneumogastric causes increased frequency of the heart's action, as it is that stimulation of it or of its origin retards or arrests it; but the conclusion is at least eminently probable. The rapid action of the heart, the palpitation, and breathlessness, which occur in anæmic girls, and males not anæmic but of weak tone, on any sudden muscular exertion, are more probably owing to debility of the par vagum and medulla oblongata than to any other cause. If a man in vigorous health attempt a feat of running or swimming, without having practised for a length of time, he will surely find that his 'wind' speedily fails him; he will have much palpitation and panting; but if he is in training, he can bear the exercise without being blown. In this case, the improved power can scarcely be attributed to anything except the increased energy of the nervous system. The hurried action of the heart, as is well known, is in no wise of the essence of fever; paresis of other centres than the regulating cardiac is necessary to produce this effect.

" 11. In the more sthenic forms of fever and inflammatory pyrexia, the diminution of the cutaneous and urinary secretions, and of the salivary, is a phenomenon sufficiently constant to require notice. It stands in sharply defined contrast to the profuse flow which is common in states of debility. In various conditions, of which low nervous power is a prominent feature, a copious flow of aqueous urine is a common occurrence; and its connection with some depressing mental emotion is often very apparent, as in the hysterical paroxysm, or the case of hypochondriasis related by Sydenham (Sydenham Society's edition, vol. ii. p. 93). Profuse sweating during sleep is a common occurrence in aguish disorder, without any organic disease or regular fit. Salivation may occur as one of the manifestations of malarious disease. In the case of the kidneys, it is certain that there is not solely increased activity of the glandular tissue, but that the homogeneous membrane of the Malpighian tufts must be in some way altered, so as to allow the more free permeation of aqueous fluid. The same is probably the case with other glands. Now, in the sthenic febrile state, the reverse prevails; the homogeneous membranes are much less permeable by water than usual. In the sthenic fevers, again, this retention of aqueous fluid is not observed; indeed, the limiting membranes allow the transudation not only of water, but also of albuminous matter and fibrin dissolved in it, and even of blood. On what this difference in the filtering power of the liminary membranes depends, is quite a matter of guess; it seems, however, not improbable that it is in part dependent on the amount of fibrin in the blood. In the sthenic inflammations, the amount of fibrin is notably increased; and in these also the diminution of the secretions is, as a rule, most observable. The fibrinous casts of the renal tubes are often so purely homogeneous, that the idea seems naturally suggested that the liminary membranes may be strengthened and thickened by additions of this substance when it is circulating in excess. It is, however, certain that the filtering power of these membranes may be notably affected by variations in nervous influence. There appears to be a general accordance between the behaviour of the arterial coats and the capillary walls. In relaxed states of the contractile coat of the arteries, the capillary membranes are more permeable than usual, and *vice versa*. The relaxation of the latter may proceed to that extreme degree in which they allow blood-corpuscles to pass through the softened texture, and ecchymosis or hemorrhage recurs. I have seen this twice in aguish disorder, as sub-conjunctival effusion.

" 12. The liability of the various organs and tissues to asthenic inflammation during the course of fever probably depends on their vital power having been so lowered by the action of the poison that a little hyperæmic afflux becomes a cause of irritation. The case is the same as when a part has been frostbitten, and the circulation has been restored too rapidly. On the same ground, when the sympathetic is cut in the neck of a debilitated animal, severe conjunctivitis sometimes ensues, because the enfeebled tissue cannot withstand the stimulus of the hyperæmia, intensified by the loss of the influence of the

vaso-motor nerves. The diarrhoea of intestinal typhoid, and its follicular deposits, seem to me to be well explained in this way.

"13. An occurrence which I think is more frequent in malarious fever, but which Dr. Corrigan speaks of as not unfrequent in typhus, or rather as a sequela of typhus, of late years, is jaundice; the skin and urine being deeply tinged, though the flow of bile into the intestine goes on freely. In this case it may be presumed that the hepatic plexus is paralyzed, and the liver in the same state as the side of the head when the cervical sympathetic is divided. Bile is secreted in excess, and a secretion-flux takes place. This, however, would not occur if the vitality of the liver were much depressed; the result would be rather inflammation. Turpentine, which cures the jaundice, acts no doubt in the same way as when it arrests a gastric hemorrhage, stimulating the relaxed vessels to contract through the medium of their nerves.

"14. The treatment of fever is to be ruled essentially by discriminating observation of the predominant pathological state, whether this approach nearer to excitement and irritation, or to pure debility and asthenia. In the former case it may be needful to bleed largely, as in tropical fevers (*vide* Dr. Copland, 'Fever,' p. 930); to give tartar-emetic and opium, as Graves did in typhus with violent delirium; or apply leeches to the temples, as Dr. Corrigan recommends in states of insomnia; or, as we so often do in the diarrhoea of typhoid, to leech the region of the cæcum, and give hydrargyrum cum creta and Dover's powder. All these are instances where lowering means are employed, with guarded caution, to quiet excited action. In the latter case, quinine, wine, and brandy, are to be administered freely, according to the requirement of the individual case. Dr. Stokes', Dr. Brinton's, and Dr. Shute's recorded experience is quite in accordance with my own. I may add, that I cannot but think the old idea that brandy and wine act beneficially by their stimulant effect on the nervous system, is far more satisfactory than the chemical notion that they act by affording a ready fuel to the respiratory process. It is the nervous system which most of all feels the effect of the poison; and it is reasonable to address our remedies chiefly to it.

"15. In the treatment of pyrexia attending on local inflammation, it is impossible to prevent the effect while the cause continues. Any tonic or stimulant that could be administered to stay the paralysis of the vaso-motor nerves, would act injuriously as an irritant upon the inflamed tissue, impede excretion, and increase the existing mischief. Thus, in febrile eczema, arsenic aggravates the skin disease and the associated pyrexia. As long as the inflammation is of sthenic character, we must apply our efforts to reduce it; in the case of eczema, we leech the skin, or apply lead lotion, and give saline aperients. When, however, the inflammation has become asthenic, or is so from the first, there is either no fever, or it will yield with the inflammation to tonics. Thus, non-febrile eczema is often cured by arsenic, which probably tones the cutaneous vaso-motor nerves, and so contracts the arteries of the inflamed part. The distinction between the sthenic and asthenic inflammation, as to the effects of treatment, is all important, and seems sadly lost sight of in the bloodletting controversy."

ART. 18.—*On the Nomenclature and Classification of Continued Fever.*
By Dr. MURCHISON, Assistant-Physician to the London Fever Hospital.

(*Edin. Med. Journal*, Oct. 1838.)

One reason why many still refuse to admit the plurality of species of continued fever, is their neglect of the circumstances under which fevers originate. In a recent essay Dr. Murchison endeavors to prove that the class of continued fevers comprises three, or in all probability four, distinct species, originating from widely different causes.

First, there is *typhus*, the grand predisposing cause to which is destitution; while the exciting cause, or specific poison, is generated by over-crowding of human beings, with deficient ventilation, and afterwards is propagated by contagion. Hence it is that epidemics of typhus occur during seasons of famine and in besieged cities; and hence it is that we find it limited to the most over-

crowded localities of large towns, and seldom meet with it in country districts, or in the upper classes of society.

Secondly, there is the "*relapsing fever*," about which there may still be some doubts as to its specific distinction from typhus. There can be no question that it differs widely from that disease, both in its symptoms and mortality; and also that a previous attack of the one confers no immunity from a subsequent one of the other. On the other hand, relapsing fever is found to prevail, as epidemics, at the same times and under the same circumstances, as typhus. Researches are still wanting as to the distinctive etiology of these two fevers; but he has grounds for believing that it will yet be shown that relapsing fever is produced by famine alone; typhus, by destitution and overcrowding combined; in other words, that destitution and starvation are the predisposing causes of typhus, the exciting causes of relapsing fever.

Thirdly, there is *typhoid* or *enteric fever*, which is less contagious than either typhus or relapsing fever, and which is quite independent of the causes which give rise to these, being generated by the putrid emanations from decaying organic (animal) matter. The grounds for this opinion may be briefly summed up as follows:—

1. Previous attacks of either typhus or relapsing fever confer no immunity from subsequent attacks of typhoid fever (and *vice versa*).
2. There is no authenticated proof that the poison of typhus has ever generated typhoid fever (nor *vice versa*.)
3. Typhoid fever does not prevail in wide-spread epidemics. It is essentially an endemic disease; or when it does become epidemic, such epidemics are always of the most limited and circumscribed character.
4. Typhoid fever is always most prevalent in autumn, or after a long continuance of hot weather. A hot autumn after a wet summer appears to afford the most favorable conditions for its development.
5. Typhoid fever is not, like typhus and relapsing, limited to the poor, but is met with among poor and rich alike.
6. Typhoid fever is not confined to overcrowded localities, but appears alike in the most dense and in the least populous districts of large towns, and even in isolated houses in the country.
7. There is evidence, of the most conclusive nature, that typhoid fever may result from the emanations from (animal) organic matter in a peculiar state of decomposition. In every instance where "fever" has been described as originating from such a cause, the fever has been typhoid. The reason why this cause is not more generally recognized, is the want of attention to the distinctions between the different fevers. Those who deny that "fever" can be the result of putrid emanations, adduce thousands of cases of typhus and relapsing fever as negative evidence, in the same way as there are not wanting a few who bring forward typhoid cases to prove that fever cannot be the result of destitution and overcrowding.

Fourthly, there is *simple fever*, or *febricula*, which is non-contagious, and arises from such non-specific causes as exposure to the sun's rays, fatigue, surfeit, &c. In its simplest form this fever may terminate in twenty-four or thirty hours, as in the ephemeral or diary fever of systematic writers; or it may be prolonged to eight or ten days, as in the ardent or sun fever of tropical climates.

Another reason why the various fevers are not more generally recognized as distinct diseases, is attributable to a faulty nomenclature. The term typhus, though derived from a single symptom, and so far objectionable, is one which is sanctified by great antiquity and a Hippocratic origin. The designation, relapsing fever, is no doubt inappropriate; for, in the first place, in a large proportion of the cases there is no relapse; and, secondly, it is hardly accurate to call that a relapse which is a constituent part of the ordinary course of the disease; yet the name is distinctive enough, and, in the present state of our knowledge, it might be imprudent to alter it. The same remark, however, does not apply to the appellation typhoid, to which I beg more particularly to draw attention. It is one which is not only faulty, but tends to create confusion. It is faulty; for, first, it literally means "like typhus," and, conse-

quently, it is at variance with all precedent in the scientific nomenclature of natural objects, whenever it is desired to confer designations on distinct genera or species; secondly, because the same word is constantly employed, in an adjective sense, to indicate a group of symptoms, which may come on in the course of any disease; and, thirdly, a large proportion of the cases to which it is applied exhibit no symptoms of a typhoid character, or resembling typhus. For the same reasons, it greatly tends to create confusion; and indeed I have good reasons for believing that this name has done as much as anything else to make the public and the great body of the profession consider that the affection is merely a variety of typhus. At the same time, none of the numerous synonyms is, in my opinion, more appropriate. For example, it would not be desirable to have a name derived from the abdominal lesion, tending, as such would do, to revive in the minds of many the exploded doctrines of Broussais. A suitable distinctive name for the disease remains a *desideratum*; and after having devoted much thought and attention to the question, the author ventures, in the essay already referred to, to propose one, derived from what he believes to be the cause of the fever. In that essay he collects what, in his opinion, is conclusive evidence that typhoid fever is produced by the putrid emanations from decaying (animal) organic matter; and he therefore suggests for it the appellation of *pythogenic fever*—*πυθoγενής*, from *πύθω* (*πύθωμαι*, putresco) and *γεννάω*. In repeating this suggestion in a more prominent manner, he does so with considerable diffidence, and is actuated solely by the crying necessity there exists for adopting a more appropriate designation for the disease in question.

The whole class of continued fevers may be said to occupy an intermediate position between the eruptive fevers (variola, scarlatina, and rubecula), on the one hand, and the malarious fevers (remittent and intermittent) on the other. As to the causes which originate the eminently contagious poisons of the eruptive fevers, we as yet know little or nothing; and if we have almost succeeded in eradicating one of these, our preventive measures have no reference whatever to the causes which generate it. The malarious fevers are non-contagious; and although we know little of the intrinsic nature of malaria, we have long known the causes and circumstances which give rise to these, and the prophylactic measures by which they may be in a great measure averted. Hence it is that agues, which in former times were so prevalent and so fatal in many parts of Britain, are now rarely met with. The continued fevers resemble the eruptive in being contagious, though to a less degree, while they are also assimilated to the malarious fevers, inasmuch as we know the circumstances under which they are developed, and the means by which they may, to a great extent, be prevented. The author is fully aware that the doctrines here enunciated are at variance with the deeply rooted convictions of a large body of the profession, who, while they admit that the various conditions specified in this paper may favor the propagation of the specific poison of fever already existing, yet deny that the poison of a contagious disease can be by any such means generated *de novo*. But if this view be correct, how comes it that the same conditions only give rise to one form of disease? If, for example, overcrowding only acts by favoring the propagation of typhus (that it does thus act he is far from denying), how is it that, in temperate climates, it is always typhus which appears as an epidemic in a besieged city, or in an overcrowded prison, and not diseases which are notoriously more contagious, such as variola and scarlatina? In fact, with regard to typhus and pythogenic fever, the matter resolves itself into this: if certain conditions are present, we can, with almost certainty, predict the result.

Pythogenic fever may be said to form the connecting link between the continued and the remittent fevers. It is but sparingly contagious. There is also much that is remittent in the history of the course of the disease—so much so, that many of the designations which have been bestowed upon it have reference to this character. There can be little doubt, he thinks, that the *hemitritæus* or *febris semitertiana* of old writers, which was considered a composite disease made up of a tertian and quotidian intermittent fever, was pythogenic fever; while it is now generally admitted that the so-called "infantile remittent fever"

is of the same nature. Again, there are not a few well-authenticated instances of pythogenic and malarious fevers prevailing together, and apparently generated under similar circumstances. Such is the case, Dr. Mercer Adams tells us, every summer in the foul-smelling city of Amsterdam. A most remarkable instance of this intimate relation between the two fevers will be found in an account of the diseases observed in the commune of Guermange, in the Duchy of Lorraine, and presented by M. Anselon to the French Academy of Sciences in 1845. There are also good grounds for believing that careful dissections will show that many of the so-called remittent fevers of tropical climates are typhoid or pythogenic. Already Drs. Scriven and Ewart, of the Bengal Medical Service, have proved, by post-mortem examinations, the existence of pythogenic fever in India and in Burmah. Dr. Scriven, who studied the characters of the disease under Dr. Jenner, at University College, has given figures of the intestinal lesion, and has written that he has met with several other cases of the same fever since the date of his papers. It will be important to ascertain what are the precise circumstances under which such cases are observed in India, and whether they are not different from what are known to develop the more prevalent malarious fevers. With regard to these last, the common opinion at present is, that, although the putrefaction of vegetable matter is a frequent concomitant, it is not an essential part of the process of the development of malaria. This opinion is founded on the facts recorded by Chisholm and Fergusson; but both the facts and the opinion require reconsideration. Without entering into this question at present, the author would merely record his opinion, that it is highly probable that vegetable putrefaction is the source of malarious fevers, while the putrefaction of animal matter begets pythogenic fever.

The paper concludes with a summary, giving the synonyms of each form of fever (a task of no small labor), with the leading distinctive characteristics.

ART. 19.—*On the Use of Powdered Charcoal and Magnesia in Typhoid Fever.* By M. DILLE.

(*Rev. de Thér. Méd.-Chir.*, June, 1858.)

The description of the cases in which these medicaments were employed is not sufficiently exact to enable us to arrive at a correct opinion respecting their value. We cannot tell, indeed, whether the cases were slight or severe. At the same time, we think it not improbable, from what we know of the modus operandi of the medicaments—a modus which would be at once disinfectant and evacuant—that the effects may have been, as they are said to have been, not a little beneficial.

ART. 20.—*On the Action of Calomel in Typhoid Fever.*
By Dr. C. A. WUNDERLICH.

(*Archiv. für Physiol. Heilkunde*, New Series, vol. i. 1857.)

In 550 cases of typhoid fever, treated during seven years, Dr. Wunderlich has used calomel seventy-six times. As a rule, this treatment was commenced before the expiration of the first week of the malady, and the cases were always of a marked and severe character. If the cases were slightly marked, if there was diarrhoea, colic, or flatulent distension of the bowels, or if the patient was anæmic or liable to scorbutic hemorrhage, calomel was not given. A single dose of twenty-five centigrammes, or of twenty to fifteen centigrammes, according to the age of the patient, once or twice a day was the plan adopted.

Of the seventy-six patients who took the calomel eleven died—a proportion which, according to the author, is below the average mortality in this affection. Moreover, seven of these eleven deaths were exceptional; thus, four did not have the medicine until the best time for its administration had been past by considerably, two were almost moribund before they had it, and the remaining one died of an accidental illness contracted during convalescence. Excepting these seven cases, then, the proportion of deaths falls to not more than four in sixty-nine, or five to six per cent.

In no instance could any injurious influence be attributed to the calomel—neither diarrhoea, nor flatulence, nor head-symptoms, nor feverishness. Slight and transient pyalism was the only inconvenience, and this was by no means present in all cases. Comparing these cases with those in which this disease was left to its own course, Dr. Wunderlich considers that the calomel was decidedly beneficial. In twenty-five cases, he thinks that the intensity of the malady was decidedly diminished, and that in five the course of the disease was actually cut short. He thinks, also, that in the other cases the patient was not only not harmed, but benefited, and that in all the cases the follicular disorder of the intestine was checked by the use of the calomel.

ART. 21.—*Some Observations on the Treatment of Smallpox.*
By Mr. MANDEVILLE, Surgeon to 3d India Depôt Battalion, Chatham.

(*Dublin Quarterly Journal of Med.*, Aug. 1858.)

Out of thirty cases treated in this way, the author tells us, only one proved fatal. Of these cases, moreover, more than half were confluent, and about ten of an aggravated character, the throat being in all more or less affected, and the greater number having been subsequently complicated by the formation of numerous abscesses over the body, the face excepted.

"As is the custom in all military hospitals, fever cases are immediately admitted when they present themselves; and, during the prevalence of the smallpox, the first symptoms of any eruption were carefully looked for, and the more especially in the present instance, as both rubella and scarlatina were also then prevailing; and, upon ascertaining that the eruption was smallpox, the patient was removed into the hospital set apart for that disease.

"The treatment up to this time was the same as for common continued fever, but I now commenced what may be termed the specific treatment. The patient was directed to take a mixture composed of two drachms of compound rhubarb powder, two drachms of tincture of hyoscyamus, and seven and a half ounces of camphor mixture, in doses of two tablespoonfuls three or four times a day; but, if the attendant fever was very high, there were added two ounces of the solution of acetate of ammonia to the above. This mixture was generally continued as long as the fever lasted, which was usually about the time when the pustules had fully matured and the scabs had formed, the fever seldom extending beyond that period. It was then omitted, and bark ordered, if there had been great prostration, after a serious attack. A draught, containing one drachm of tincture of hyoscyamus in an ounce of camphor mixture, was given at night, as soon as the patient complained of any restlessness or itching, which was about the second or third day of the eruption in the confluent form; but they sometimes complained of it on the first day, when the eruption appeared to be retarded, as if struggling to force its way through the cutis vera. This was continued every night as long as the sleeplessness from the pruritus continued, and at the same time the following liniment or ointment was laid on with a large-sized camel-hair brush three or four times a day over the face and any other part of the body of which the patient complained of being itchy, viz., half a drachm of extract of belladonna, rubbed up with half a drachm of spermaceti ointment, to which were added three and a half ounces of olive oil and two and a half drachms of chloroform. The cerate was added to give it consistence and hold the chloroform in suspension, but the bottle must, notwithstanding, be well shaken before using, as the chloroform will subside after standing for any time.

"In giving the above as being generally sufficient, I should have said, as the basis of my treatment, I wish it to be distinctly understood that I do not mean it in an empirical sense, as every case of smallpox must be treated according to the individual symptoms, and the practitioner must be prepared to meet every contingency or complication of other organs that may arise, either of the head, chest, or abdomen, and act accordingly; but, as far as I can at present judge, it appears to me that by adopting the above mode of treatment, the tendency to such complication will be much diminished or modified.

"I may here say a few words on the rationale of the treatment. The mix-

ture is intended both for the purpose of keeping the bowels free, and reducing the fever and irritation of the skin without depressing the system, as we cannot tell *a priori* what secondary affection may set in, in which the vital powers may be brought to the lowest ebb and require to be sustained by enormous stimulants.

"As to the administration of the full doses of hyoscyamus at night, I wish especially to direct attention to it as a curative means in the treatment of smallpox, and I consider that without its aid I should not have had anything like the success which I have had; and there need be no apprehension of giving it even when delirium sets in (the latter being met by appropriate treatment)—the object which I had in view being both for the purpose of procuring sleep, as also of allaying the irritation, and which is gained, I suspect, by its causing the eruption to force its way more kindly through the cutis vera; and this latter effect is also favored by the external application of the chloroform and belladonna ointment, which I consider a valuable adjunct in the treatment of smallpox. The patients invariably expressed their sense of relief soon after its application, some saying it made the skin pliable; others, that it made it feel cool; others, again, that it made it moist; but all felt it relieve the itching or tingling feel.

"One remarkable fact which I have observed since I have commenced using this ointment is, that none of the confluent cases were pitted (with the exception of three cases, and in these very slightly indeed), and we could perceive, after the scabs became detached, the places where the original pustules were had an elevated instead of a depressed base, so that the subsequent absorption left the skin in its normal condition. I should, however, wish that other practitioners would try the ointment, in order to ascertain whether this latter circumstance was accidental or not."

ART. 22.—Incubation of Measles. By Dr. KERSCHENMEISTER, Assistant-Physician in the Hospital for Children at Munich.

(*Prager Vierteljahrsh. f. Prak. Heilk.*, Bd. 1, 1858.)

Dr. Kerschmeister endeavors to fix the period of incubation in measles by observing the day in which the eruption made its appearance in families when a second child was affected, and of counting the number of days between this time and the appearance of the rash in the case of the child first affected. Great care was taken to select these cases, in which the infection could have been derived from no other source, and the result was that in 37 cases so selected the rash came out between the tenth and twelfth day in 34.

ART. 23.—Relation between Scarlet Fever and Measles.
By Dr. R. KÜTTNER, of Dresden.

(*Journ. für Kinderkrankh.*, March and April, 1858.)

Dr. Küttner is of opinion that scarlet fever and measles are to be regarded rather as varieties of one and the same disease, than as distinct diseases, and in support of this opinion he relates a number of cases which appear to be of a transitional character—cases often described as rubeola. In one case, observed by himself, he thinks he has grounds for concluding that the same contagion produced measles in one case and scarlet fever in another.

ART. 24.—On the Treatment of Scarlatina with Tincture of Iron.
By Mr. H. MEADE, Surgeon to the Bradford Infirmary.

(*Medical Times and Gazette*, June 26, 1858.)

"During the last eight or nine months," says Mr. Meade, "scarlatina has been very prevalent in this neighborhood, and in some localities very fatal. My attention having been thus directed to the disease, I have been particularly

struck by the close resemblance between many of its symptoms and those of erysipelas,* and I determined to treat it in the same manner.

"I had long been convinced of the value of the tonic and stimulant treatment in all forms of the latter disease, and formerly placed my chief confidence in ammonia. I found, however, that the mineral acids with quinine were more efficacious, and generally prescribed them, until a few years back, when the tincture of sesquichloride of iron was recommended. Though the value of this remedy has been doubted, I have found it so useful that I regard it almost as a specific, both in the idiopathic and traumatic forms in the disease, and invariably prescribe it both in hospital and private practice; and I have been assured by other medical men that they have equal faith in its virtues.

"Having so much confidence, therefore, in the tincture of iron in erysipelas, I determined to try it in scarlatina; and I have, accordingly, given it during the last winter and spring to every case that I have seen, with the exception of a few, which were so slight as scarcely to require any medicine. The success of this treatment has exceeded my expectations, and I have only had one fatal case since I commenced its use. Several cases, in which the symptoms set in with severity, were apparently cut short by it; and almost all the cases in which I gave it recovered with unusual rapidity. I give it in doses varying from five to fifteen minims, according to the age of the patient, every three or four hours; and when the throat is ulcerated I also apply a solution of nitrate of silver to the fauces. Several of my medical friends have tried the tincture of iron at my suggestion, and have reported favorably of its use.

"I know that it requires a much more extended experience before the peculiar efficacy of this remedy can be established; and the principal motive that I have in bringing it before the profession is to induce others to give it a trial."

ART. 25.—*On the Shedding of the Teeth and Exfoliation of the Alveolar Processes after Eruptive Fevers.* By Dr. JAMES SALTER.

(*Guy's Hospital Reports*, Third Series, vol. iv. 1858.)

During the past few years Dr. Salter has had under his care, principally among the out-patients at Guy's Hospital, a number of cases in which necrosis and exfoliation of the alveolar processes of the maxillæ, accompanied by shedding of the contained teeth, has been one of the secondary consequences resulting from the attacks of the eruptive fevers—scarlet fever, measles, and smallpox. These cases have been so singularly uniform in their origin, course, and entire history, that though following different forms of eruptive disease, they would seem to have a generic identity; indeed, so similar have they been, that it would be impossible, from a mere inspection of the patient during the period of exfoliation, to have any idea as to which of the eruptive fevers had preceded the then condition—a circumstance which, while it simplifies the description of the several cases, seems to indicate that the immediate cause at least, whatever it may be, is common to the several forms of eruptive fever after which this condition occurs.

But though there is so complete a similarity in the cases themselves, the proportion in which they occur, as sequelæ to the previous fevers, differs very considerably. After scarlet fever he has had some eight or ten cases, after measles three or four, and after smallpox only one. These figures, referring as they do to sources of observation, combining private practice with a large population of poor who seek assistance at Guy's Hospital, and this extending over a period of six years, may probably be taken as at least an approximation to an expression of what is the relative frequency with which such consequences succeed the different eruptive fevers respectively.

These cases are all singularly alike, and thus the narration of one case will convey a good idea of them all. Take for example the following: About two years since a poor woman brought her child to me among the out-patients at

* I am aware that there is no novelty in this fact, some pathologists thinking that a most intimate connection exists between the *materies morbi* in these and some other acute contagious diseases. (See Dr. Holland's *Medical Notes and Reflections*.)

the hospital, suffering from this tooth-shedding and necrosis of the lower jaw. The child's history was this: She was a remarkably healthy little girl of five years old; about two months previous she had a mild attack of scarlet fever, which had run its course, and passed off without any untoward symptoms; her recovery was complete, and her health restored to its usual vigor. A few days before the mother applied at the hospital, she had, for the first time, noticed that the child's breath had become offensive, and upon examining her mouth, had discovered appearances for which she now sought advice. The child now looked in remarkably good health, was rosy and robust, and all she complained of was a slight discharge from the edge of the gum on the left side of the lower jaw, at a part corresponding with the temporary molars, and of some slight pain in that region. Upon inspecting the mouth, it presented certain characteristic appearances: both on the inside and outside of the temporary molars, on the left side of the lower jaw, the gum was stripped for the depth of about the eighth of an inch, leaving bare so much of the alveolus, while, from within the edge of the mucous membrane, which was red and tumid, oozed a discharge of pus; and the odor of the mouth was fetid. It was particularly observed that there was no thickening of the jaw, and no effort at the formation of supplemental bone; neither was this necrosis of bone associated with fistulæ or sinuses; the discharge of pus coming simply from the edge of the gum, where it had peeled from the alveolus. The mother of the child did not associate this condition with the previous attack of scarlatina, and was somewhat surprised when asked as to *which* of the eruptive fevers (naming them) she had recently suffered from.

It was directed that nothing should be done in this case beyond the occasional washing of the mouth with a dilute solution of trishypochlorite of lime, and that the patient should see me again in a week.

On presenting herself at the appointed day, the peeling of the gum from the alveolar process was found to have progressed considerably, not laterally, so as to involve bone corresponding to other teeth, but simply stripping more from the bone already partially laid bare. It was now found, too, that the same series of changes had commenced on the other—the right side of the lower jaw, and to exactly the same extent of lateral boundary, though as yet it had made but slight progress. This state of things gradually and uniformly progressed; the left side being in advance of the right—the discharge increasing, and the odor of the mouth becoming more offensive, till about six or eight weeks had elapsed, when the sequestrum on the left side commenced to loosen, and in a few days was readily removed by a pair of dressing forceps, accompanied by the contained teeth. After the sequestrum was removed, it was found that the base of the jaw was still entire, and the integrity of the maxillary arch unbroken; the bone having ulcerated across beneath the loculi, occupied by the forming bicuspid. The now exposed surface exhibited bleeding granulations, which speedily healed. In about a fortnight the same occurrence took place on the opposite side of the jaw, without any variation in the attending circumstances.

This history may be taken as a typical example, and as illustrating the ordinary course and issue of these cases. Uniform, however, as they are in all essential particulars, they are, nevertheless, subject to considerable variations in degree of severity. Thus, in one case, not only were the corresponding sides of the same jaw attacked, but after the sequestrum and contained teeth had been cast off from the lower jaw on either side, the same occurred in the upper, so that all the eight temporary molars, and all the eight immature bicuspid, with their containing alveoli and loculi, were exfoliated.

The first evidence of exfoliation has always been apparent within eight or nine weeks after recovery from the eruptive fever, usually within four or five. It has never been preceded by swelling or pain, or accompanied by periosteal abscess; the suppuration always occurring at the part where the gum peels from the alveolus, which appears to be the simple method of exposing the dead bone.

It has happened more frequently in the lower jaw than the upper, and when in both, first in the lower.

Whichever jaw has been the subject of the exfoliation, it usually occurs on both sides, either coincidently, or in rapid succession; its tendency is to be symmetrical.

The severity of the previous attack of fever seems to have no relation to the subsequent exfoliation—a very light attack of eruptive fever may be followed by a considerable exfoliation, or the reverse; sometimes it is associated with other secondary symptoms, more often not; indeed, it has seemed to me to have generally occurred in very healthy children.

The age at which these exfoliations have occurred is worthy of especial note. It occurs during the time that the most active tooth development is going on in the jaws, and when all those parts are undergoing the most rapid nutritional changes—about five or six years of age. From four to eight years are the extreme limits noticed.

It is not a little remarkable, that in *every* instance that has come under my observation, the temporary molar or molars, and the corresponding bicuspid or bicuspsids, with their containing alveoli or loculi, have been the parts to suffer.

In no one case has the shedding of teeth been confined to the temporary set; the successional (bicuspsids) have always been involved, and shed also.

What *may be* a coincidence—Dr. Salter has frequently found these cases among the poor; and what, no doubt, *is* a coincidence, the patients have generally been girls.

The explanation of these cases Dr. Salter considers will be found in a rational interpretation of the three following propositions:—

1. Certain diseased conditions of teeth are sufficient to produce their own shedding, by the necrosis and exfoliation of their containing alveoli.

2. In the eruptive fevers the poison of the disease spends its chief force upon the tegumentary system.

3. The teeth are modified papillæ—are members of the tegumentary system.

These propositions are acknowledged truths. By applying them to the cases under consideration, I submit that they explain them—that they solve the difficulty of establishing one similar *immediate* cause as arising from three several *primary* ones, and show why these cases of tooth-shedding and alveolar necrosis, produced by three forms of eruptive fever, may be identical in aspect, identical in course, identical in issue.

ART. 26.—*On the pathology of Rheumatism.* By Dr. F. T. BOND.

(*Midland Quarterly Journal*, April and July, 1858, and *Medico-Chir. Review*, Oct. 1, 1858.)

Dr. Bond analyzes the prevailing doctrines regarding the intimate nature of rheumatism, and objects, with regard to the lactic-acid theory, which may be said to be the one most generally prevailing at present—1, that lactic-acid has not been shown to be in excess in the blood of rheumatic patients; 2, that, even supposing it to be present in excess, it would be difficult to trace connection between this circumstance and the exudations in and about the different fibrous structures of the body; 3, that other acids being in excess in the secretions, and therefore possibly in the blood, they may be as much the cause of the phenomena as lactic acid; 4, that, in regard to the theory attributing the disease to suppression of the cutaneous excretions, it is doubtful whether it is preceded by greater suppression than the prodromata of all inflammatory diseases bring with them; and 5, that the extreme tendency to sweating which occurs during an acute attack of the disease, may be much better explained by another theory.

In order to establish a theory of rheumatism, Dr. Bond next analyzes the phenomena of the disease, and finds that fatigue, exposure to cold, mental emotions or some other depressing agent, exercise a paramount influence in its production; febrile symptoms making their first appearance, followed by local affections in some fibrous tissue. A hyperinotic condition of the blood exists from the first, and the excessive fibrin having a special affinity for the fibrous structure, is specially deposited in and about them; hence the joints and the valves of the heart become the chief seats of the local affection. The preference shown in different cases for particular joints depends upon their greater weak-

ness, or upon their labouring under some abnormal condition, upon the principle enunciated by Mr. Paget, that the depressed nutrition of a joint makes it more liable than any other part to be the seat of inflammation excited by the diseased blood. Dr. Bond's theory, then, reverses the order in which the different constituents of the diseases are commonly supposed to stand. Instead of regarding the hyperinosis merely as an effect of the reaction of the local disease upon the system at large, he considers it to be the primary source of the exudation, the causative agent of the latter, without which it could never exist. The increase in the urinary and cutaneous secretions, and the greater amount of urea, uric acid, lactic, phosphoric, and other acids in them, the author attributes to the metamorphosis of the fibrin; these substances being the products of the degradation of fibrinous matter, "the relations of urea and uric acid to highly nitrogenized matters—as exhibited by the experiments of Lehmann, by the recent manufacture of urea by oxidizing albuminous substances by M. Béchamp, and by the general excess of these excreta in the hyperinotic states of the blood, combined with that of lactic acid, to the muscular juice as determined by the researches of Liebig—amply corroborate this statement as far as these three bodies are concerned; the others, from the smallness of their amount, may be put out of consideration."

Dr. Bond considers the sources of an excess of fibrin in the system to fall under three heads—1, as a result of imperfect primary assimilation; 2, as a result of a metamorphic process, normal in nature, but extreme in amount; 3, as a result of defective elimination of the fibrin by the excretory processes provided for the purpose.

Having said thus much, we must refer our readers for the conclusions which the author draws as to treatment to the paper itself; we will merely add, that his theory possesses a great resemblance to that propounded by Mr. Teynbee, a short time back, at the Medical and Chirurgical Society, shortly after the publication of the first part of Dr. Bond's paper.

ART. 27.—On Diphtheria. By the REGISTRAR-GENERAL.

(Quarterly Return of the Registrar-General, March, 1858.)

"A disease, which is not new, but has been described afresh in France, has been fatal in several districts. It has been called 'throat-disease' in some of the returns, and from its having attacked English visitors in Boulogne the name of that town has been occasionally employed to qualify the affection. Diphtheria, its name in the statistical nomenclature, is adopted from the French writer who described the disease under the name of *diphtherite*, in reference to the characteristic membranous exudation in the throat.* The termination "*itis*," as in gastritis, is used in medical language to designate pure inflammation of the organ, which the root of the word expresses; hence *ia* has been substituted for *ite*, the French form of "*itis*," as this cannot with any propriety be placed after *diphthera*, designating a product of disease, and not an organ of the body.

"No notice has been taken of the disease by the registrars either in the country north of Staffordshire or in Wales; and it has probably not prevailed there epidemically to any great extent. It is, however, allied to one of the forms of scarlatina, and is still confounded with that disease, with croup, or with quinsy, by some practitioners.

"Diphtheria, like Asiatic cholera, is probably only a more intense form of an old disease; but new intense spreading forms of disease deserve close attention, for with the increasing density of population, the intimate connections between England and every unhealthy climate of the world, and the slow progress of sanitary improvement, we cannot consider ourselves absolutely safe from an eruption of some epidemics, which, like their predecessors, may open a new chapter not only of medical but of national history; for Niebuhr acutely remarks, that the great epochs of history are marked out by pestilences.

"Epidemics, like new varieties of animals, spring up under favorable cir-

* *Diphthera*—*Sisypus*—a prepared hide, leather. *Sisypus* were used for writing on in the east, like vellum or parchment. (Liddell and Scott.)

cumstances. Each epidemic form has its congenial climate. The cholera epidemic is bred on the delta of the Ganges; yellow fever on the banks of the Mississippi; plague around the Nile in Lower Egypt; typhus in our towns; ague in our marshes; diphtheria, according to the popular theory in France—where the conditions are more favorable, on the whole, than they are in England—to the diffusion of putrid effluvia over the fauces.

“Every Englishman admires the works of art, the picture galleries, the houses, the furniture, the cultivated personal taste which surrounds him on every side in Paris, or on a small scale in Boulogne. He admires some of these objects every day, others every week; but has every day to give up his admiration at the door of that inscrutable *cabinet* where the light of French refinement never comes; where his throat is assailed by the poisonous distillations that engender disease, and explode, if you count well the victims, with much more fatal consequences than gunpowder or even than fulminating quicksilver. That men should lock up jewels in cabinets, keep their larders full of delicacies, or stock their cellars with wine, is natural; but it is a singular absurdity in civilized men to attempt to hoard for years this volatile essence, which bursts its chains, and, like an unclean spirit, enters not only every apartment in the house, but every channel of access to the living chambers of the body, leaving at times such traces of its passage as diphtheria in the throat. The disease once generated, wanders abroad, and destroys life under circumstances quite different from those in which it was born; but impurity is always its natural ally.

“The Scotch threw these matters into the streets, and justly incurred the censure of the fastidious. In London, and even in the country mansions of England, retreats still exist which may rival the French magazines of impurity; but it has of recent years been the practice to throw the guano compounds of London, with water, into the sewers; which, though not constructed for the reception of such matters, and consequently suffering their volatile principles to escape into the streets, convey a portion of their elements to the Thames, and commit them to its flood of tidal waters.

“Dr. Barker has recently performed an ingenious series of experiments on animals, to determine the effects of each of the noxious principles which arise from cesspools. He placed the animals in a close chamber by a cesspool, with which a tube opening into the chamber communicated; and a lamp was arranged so as to draw a current of cesspool air steadily over the creatures inside. With a pair of bellows Dr. Barker could draw the air from the chamber. A young dog in half an hour became very uneasy and restless; he vomited, and had a distinct rigor, and in the course of a day was exhausted. When he was removed he soon recovered.’ ‘Another dog was subjected to the cesspool air during twelve days;’ in the first seven days he underwent a series of sufferings, not unlike the symptoms of the disease of children in hot weather; on the ninth he was ‘very ill and miserable.’ After he was liberated, on the twelfth day, he remained ‘very thin and weak for six weeks.’ Dr. Barker then continued his experiments on the effects of definite doses of the gases in the sewers, and killed or poisoned several sparrows, linnets, jackdaws, and dogs.

“Thus Dr. Barker has, for our instruction, imitated on a small scale, and on a few of the inferior animals, the vast experiment which is constantly going on, and destroys thousands of men, women, and children all over England. Instead of a few animals in a close chamber, more than two millions of people live in London over sewers and cesspools. The poison is generated in every house; it is distributed conveniently along all the lines of road, so as to throw up its vapors into the mouths, throats, and lungs of the people through innumerable gully-holes, which are either left untrapped, or trapped imperfectly, in order that the poisonous gases might escape. A variation in the pressure of the atmosphere draws up the stinking air from the sewers, like Dr. Barker’s bellows. All the details of the experiment were as carefully contrived by the engineers of the old Sewers Commissioners as if they were constructing an apparatus for passing currents of poisonous airs steadily over the people of London, with a view, like Dr. Barker, to ascertain their exact effects. The engi-

neers of the new Board of Works have endeavored to keep the apparatus in order.

"It is now time that this cruel experiment should cease. Last year, when no epidemic prevailed, not less than 14,795 unnatural deaths were registered in London. This was the aggregate effect of the impure airs, and of other sanitary defects.

"Will the London Board of Works stop the experiment? Are they, like Dr. Barker, convinced and satisfied? Will they bring their common sense to bear on this question? Gases are constantly generated in the sewers and cesspools, and these gases will escape. Their elasticity carries them—and perhaps still more poisonous organic compounds—through the gully-holes, so long as there is no other outlet. But what can be an easier engineering problem than to discharge into the atmosphere the sewer gases, through pipes running up, and at least as high as the chimneys? This is in partial operation, and if made universal would be a mitigation of the evil. There are many ways of getting entirely rid of these gases, and why should not the inexpensive work be at once done?

"The sweet odors that enter the country are taxed; and every one has witnessed the admirable zeal of her Majesty's customs' officers in their searches for eau de Cologne. If a tax could be levied upon odors of another description, bearing some proportion to the evil they do, it would be much more productive; and if it were levied through the agency of the Board of Works in London, and the Sewers Commissions elsewhere, it might be more beneficial, as they would undoubtedly find it economical to substitute fountains of rose-water for their present gully-holes."

ART. 28.—*On Diphtheria as caused by the Oidium Albicans.* By Dr. LAYCOCK, Professor of the Practice of Medicine at the University of Edinburgh.

(*Medical Times and Gazette*, May 29, 1858.)

In the following remarks, which occur in a clinical lecture upon a case of cancer of the supra-renal capsules and mesenteric glands, without bronzing, Dr. Laycock points out an analogy between diphtheria and muguet, and endeavors to show that both these diseases are due to the presence of a parasitic fungus on the surfaces of the mouth, fauces, and other mucous structures.

"The case before us has various points of practical interest. The immediate cause of death was the exhausting intractable diarrhœa. Now this supervened coincidentally with an attack of diphtheria or diphtherite. At the onset of the disease, and just before death, we found in the pellicle formed on the tongue and fauces the sporules and mycelium of the *oidium albicans*, a parasitic fungus found also in muguet—the epidemic aphtha or diphtheria of infants in France. This is an interesting fact at the present moment, when diphtherite is prevalent, more especially as the pellicle was also found abundantly after death in the œsophagus. I have little doubt that this pellicle was due to the action of the parasite on the enfeebled mucous surfaces of the mouth, fauces, &c. It acts, like all its tribe, as an irritant, inducing increased formation of epithelial scales and effusion of mucous exudation-corpuscles, or plasma; intermingled amongst these are the sporules and the mycelium of the microscopic fungus; the whole constitutes a pellicle or membrane, as it has been termed, varying in thickness and tenacity according to the surface attacked, and according to the condition of the patient. The parasite seems to act upon the capillaries of the subjacent tissue, as when removed blood is not uncommonly effused and the surface looks raw. Diphtheria is not, however, necessarily limited to one form of disease. We have, in fact, had a case of syphilitic disease of the fauces and pharynx, in which the pellicle containing the *oidium* was noted, and which seems to have introduced it into the clinical wards. Again, if the fungus multiply in a population at the same time that there is an epidemic of scarlatina or rubella prevalent therein, that epidemic may be expected to take the diphtheritic form in those cases which are attacked by the *oidium*. I must add, however, that we have had reasons for thinking that the *oidium* acting alone will fasten upon the mucous membranes of the mouth and

throat, and excite inflammation, and without the formation of a pellicle. Or if it lead to the formation of a pellicle this may be constituted of spores only, with exudation-corpuscles, constituting a tougher membrane than that usually found on the tongue and tonsils, and resembling the pellicle of croup. The diagnosis of diphtheritic iodism from ordinary aphtha is founded, first, on the character of the morbid appearance; for in ordinary aphtha the disease is vesicular, and the white specks or patches are ulcers, while in diphtheria they are pellicular, and not ulcerative, while the redness is much deeper than in aphtha. Besides, the microscope may reveal the spores and mycelium of the fungus. The development of mycelium is, however, by no means a necessary result of the action of the fungus. This seems to be peculiar to the more advanced stages; at first there is not even a pellicle, only characteristic redness of the affected surface. Dr. Young, our resident physician, got an attack of sore-throat shortly after one of the patients affected with oidium coughed in his face, while he was applying a remedy to the patient's fauces. Dr. Young had this characteristic deep-red congestion of the fauces, with but a very limited production of pellicle on the pharynx, in which no mycelium was to be discovered. Further, it is probable that, besides the stage of development, the condition of the *habitat* may make a considerable difference as to the morbid products. Thus, since warmth greatly promotes the spread of the disease in the form of muguet, the absence of mycelium in diphtheritic croup may be due either to the fact that the weather is cooler when it prevails, or that the mucous membrane of the larynx and trachea, being cooler generally, from the transit of air, is less favorable to the development of the mycelium than that of the mouth, fauces, and œsophagus. Again, the condition of the intestinal mucous membrane seems less favorable to the formation of the mycelium, or of a pellicle upon it. Still inflammation and even ulceration of these surfaces will occur as the result of the irritative action of the parasite, in the same way as ulcerative inflammation supervened in the œsophagus of the patient in question. This remark applies also to the bronchial mucous membrane, in which I am inclined to think the oidium may develop an inflammation of the same low type as that seen elsewhere—an asthenic bronchitis with a purulent secretion.

"In France, a cutaneous form of muguet is observed in children, characterized by a vivid or deep-red erythema and ulceration, more particularly of the inner surface of the thighs, the labia, malleoli, &c. There seems no reason to doubt that the fungus (like others of its kind) may fix upon a suitable portion of the skin. A sucking child with muguet will communicate the disease to the nipple of its nurse. In the case of the syphilitic sore throat attacked by the oidium, there were also superficial ulcerations of the face of a glazy unhealthy character, one at the angle of the right eye, and one at the right angle of the mouth, which were treated locally as diphtheria-ulcerations, by a strong solution of borax, and with speedy benefit. How great a share these microscopic parasitic organisms have in the causation of disease, remains yet to be ascertained; but I may mention to you, as a curious fact of the kind, that in a case of asthenic bronchitis, admitted a few weeks ago into the wards, the *volvax globator* was found in apparent abundance in the fur of the patient's tongue, which was brown, rather dry, and scabrous.

"The indications in the treatment of diphtheria are twofold. First, to look to the constitutional condition and treat that; secondly, to aim at the destruction of the parasitic fungus, more especially with a view to prevent its extension along the food and air-passages. As to the constitutional condition when a pellicle forms, it is, I believe, invariably asthenic, arising either from a chronic morbid state or from the action of a depressing fever poison on the blood and on the parts affected, as in scarlatina. Like all parasitic fungi, it thrives best where the vitality is low. Where there is not an asthenic state the oidium seems rather to excite a deep red inflammation of the tonsils and fauces generally, and if a pellicle form, little if any mycelium is seen in it. As a general rule, tonics and stimulants, and the so-called 'antiseptics,' are indicated.

"Locally, the remedies which we term parasitocides are the best. There is of these a wide range of choice, but perhaps the saturated solution of the bi-

borate of soda is the most efficient and the safest. It is a powerfully destructive agent to the class of fungi; but alkalies generally are parasitocidal. As the oidium is apt to attack the oesophagus, especially in children, and thence extend downwards to the stomach and intestinal canal, the borax may be administered internally also. For similar purposes the chlorate of potass may be used. We applied the linimentum æruginis (an acetate of copper) in the syphilitic case with good effect. The bichloride of mercury, in the form of a gargle, is also a destructive parasiticide, and is an old remedy for 'malignant' sore-throats; but any metallic salt (as the sulphates of zinc, iron, copper), would probably be efficacious. Alkaline gargles and applications, and especially the chlorides (as common salt), have also been found advantageous. Although the nitrate of silver was applied in the case of Denholme, it is not under ordinary circumstances the best application, although the most popular. It is evident that sporules of the fungus may and do pass from one person to another; or, in other words, diphtheria, as due to the oidium albicans, is infectious and contagious. It is of importance, therefore, to take the necessary measures for the prevention of its spread. In the case of families of children, the best undoubtedly is isolation of the sick from the healthy."

ART. 29.—*Diphtheria and its Connection with a Parasitic Vegetable Fungus.*
By Dr. WILKS, Assistant Physician to Guy's Hospital.

(*Medical Times and Gazette*, Oct. 2, 1858.)

Opinions still vary as to the true nature of diphtheria, and as to its connection with a parasitic fungus (*oidium albicans*). As on several occasions the white film on the throat has been found to consist of this fungus, it has been conjectured whether the malady is not really one having a parasitic origin, and the belief has been rendered more probable from the fact that several new diseases have of late prevailed throughout the organic kingdom, both animal and vegetable, which are clearly traceable to parasites; for example, the oidium of the vine. Unfortunately, those practitioners residing in districts where diphtheria has been endemic have been silent on this point, and it has only been by occasional observers that the fact has been made out. In the few cases of the disease which Dr. Wilks has seen, a fungus has always been present, and thus my belief was, until lately, growing strong that in this observation would be found the true character of the malady, or, at least, that the parasitic growth was intimately connected with it, the question still remaining open whether the formation or growth of the fungus is the primary process, or whether a diseased condition of the surface must not previously exist to prepare a suitable nidus for its development; a question still debated in connection with other parasites, as the *porrigo lupinosa* (faveuse), a disease in which some cutaneous inflammation is generally found, and thus creating a doubt as to whether this is excited by the fungus, or whether an herpetic or pustular eruption does not previously exist to form a suitable soil for the sporules which are afterwards sown in it. Let the formation in the throat be primary or secondary, it still remains important to know whether its presence is an essential part of the disease; indeed, the spreading character of the pellicle, its separation and destruction by corrosives, are all facts which seem to indicate that many features of the disease are due to its existence.

His attention being directed to this matter, the author took the opportunity to examine the films which occasionally form on the mouths of those sick with various diseases; and on submitting them to the test of the microscope felt some surprise in witnessing in all fungous growth which he had not been able to distinguish from that of diphtheria. Thus, he lately had a woman die under his care in Guy's Hospital, with acute cerebral and spinal meningitis, pleuritis, &c., of a supposed phlebotic origin, and on examination of the pharynx after death, a pellicle was found composed of the parasite. Again, a child four years old presented itself among his out-patients, apparently dying with croup, but on examination was found to be suffering from an extension of diphtheritic disease into the trachea. The throat and tongue were covered with a white pellicle, a portion of which, being placed under the microscope, displayed very

readily the oidium; the only difficulty about the case being the statement of the mother, that the child had suffered with a throat affection for several weeks. Mr. Hardy made a post-mortem examination. The throat, trachea, &c., were covered with a pellicle, as before said; and on removing this to find a cause for the chronic symptoms, a polypus of papillary character was seen growing from one of the vocal cords, with thickened tissue around. Here was an explanation of the chronic symptoms; and upon this had arisen an acute inflammation accompanied by the fungus. Another case was that of a man who died last week under the author's care, in the hospital, with softening of the spinal cord. A few days before his death his mouth and tongue became covered with a white secretion, which very rapidly formed a complete layer over the whole buccal surface. An examination of this by the microscope showed a remarkably fine specimen of the fungus, the mycelium and sporules exhibiting themselves to perfection. On mentioning these circumstances to Dr. Barlow, he stated that he had under his care a child with a white film on its mouth (the case not being one of diphtherite), and he sent some of the secretion for examination, when it was found to resemble the specimens already named; and the same occurred in one or two other cases. These facts are sufficient to show that a vegetable fungus may spring up on the buccal mucous surface in various cases of disease, but requiring probably some previously morbid condition for a nidus. Is it not so in diphtherite? Is the disease, strictly speaking, a malignant sore throat, and the formation of a pellicle an accident; or is the latter an essential part of the affection? In the case of the child just mentioned, if no post-mortem examination had been made to discover the chronic disease, the case would have been called diphtheria; and in the man with spinal paraplegia, the condition of the mouth would have been sufficient to have marked it a case of the same kind had there been no other affection present. Such cases may throw some light upon the opinion of those practitioners who, not residing in diphtheritic districts, and who see only isolated cases, regard the disease as a mere modification or peculiar form of some ordinary maladies, as cynanche and scarlatina, and this may in some instances be correct. In speaking of the parasitic growth found in the above-mentioned instances we are aware of the objection which can be made—That the fungus of diphtheria is peculiar (supposing it always to be present), and that found in the mouth of other sick persons is in connection with aphthæ, and is another variety. In answer, Dr. Wilks says that he failed to discover in the above cases any difference, and, moreover, the character of the pellicle and its rapid extension over the whole mouth, throat, and tongue, was totally unlike ordinary aphthæ.

ART. 30.—On *Erethismus tropicus*.

By MR. S. R. TAYLOR, Deputy-Inspector of Hospitals, Fort Pitt.

(*Lancet*, Aug. 21 and 28, 1853.)

Under this name Mr. Taylor proposes to collect in our Indian military medical returns all cases of that peculiar disease, or state of system, which exhibits the acute effects of continued high tropical temperature on the European, and which he believes to be an exhausting excitation of the system by continued tropical heat. Sporadic cases of this disease are not uncommon in India every hot season, and occasionally a European regiment is prostrated by an epidemic or endemic outbreak of it.

* The common features of the disease, or state of system, I alluded to are as follows; and in enumerating them, I am bearing in mind instances that came more immediately under my own observation whilst serving in India from 1842 to 1854. The attack is generally more or less sudden, and the symptoms of the premonitory stage are rapidly succeeded by coma, from which the patient rarely recovers. A soldier, apparently in good health, and at some ordinary occupation in his barrack-room; or on sentry, or guard, in a close and very hot, though shaded place; or on, or after a march in the hot season, or hot hour of the day; or in hospital for dysentery, or some other disease; or a lady in the cabin of a boat on the Ganges in the hot season, is suddenly seized with overpowering lassitude and feelings of oppression, from the great heat of the

weather. There is fulness and distress about the præcordia, perhaps sickness at the stomach; generally pain in the head or eyes; the skin is at the same time hot, and 'a burning heat inside' may be complained of; the pulse is more or less strong, according to the general previous condition of the individual. These symptoms last but a very short time; perhaps in ten minutes from the onset of the disease the patient is insensible, and at the same time he may be convulsed. Deep coma succeeds, and from this stage recovery is very rare. During this coma the breathing may be stertorous and apoplectic, or gasping, or otherwise. The most extraordinary symptom in these cases is the progressive rising heat of skin as the disease advances, and even for some time after death. It must have been an instance of this peculiar affection that Dr. Livingstone met with in Africa. He relates that he was called to see the body of a Portuguese lady, which continued so extraordinarily hot six hours after death that her decease seemed to him for that period doubtful, and he accordingly delayed the funeral till signs of decomposition appeared."

ART. 31.—*Researches on the Malignant Pustule of Man and Animals.*

By Dr. R. VIRCHOW.

(*Archiv. für Pathologische Anatomie*, New Series, vol. i. 1857.)

The author has ascertained by experiment that this disease may be propagated by inoculating, not only with the matter of the pustule, but with the blood of the diseased body, and that the time which elapses between the inoculation and death varies between 44 and 66 hours, with one exception, in which a sheep died in 31 hours. He has also investigated with much care the characters of the blood, and found that the white corpuscles are present in greater numbers, with some vibrations. These latter bodies were met with in living blood, and consequently they are not to be regarded as the products of decomposition.

(C) CHRONIC DISEASES.

ART. 32.—*On a Method of Curing Gout.*

By Professor SERAFINO BELLI.

(*Il Raccogl. Med. de Fano*, and *Charl. Med. Rev.*, July, 1856.)

The following account, which is said to be prepared after many years of observation, is taken from the original by Dr. F. P. Poreher.

Having premised some reflections upon the importance of collecting and publishing our medical observations, Professor Belli gives a resumé of his practical experience, with regard to the treatment of gout, in the following words: "The principal remedy that I employ in the curative treatment of gout is a purgative drink composed of an ounce or more of sulphate of magnesia, a scruple of nitrate of potash, a grain and a half (*grano*) of sulphate of iron, dissolved in a pound and a half of water. The patient takes, early in the morning, and upon an empty stomach, this drink in three parts, with intervals of a half hour between each; after this he is advised to drink a cup of thin meat broth, or an infusion of malva leaves, of tea, or even of chamomile flowers, if he prefers them. The effect produced in a little time consists in repeated evacuations of the bowels, copious, easy, and without pain of any kind; they become very bilious and liquid, finally assuming a color more and more dark to dark green. I begin the treatment with this purgative, which is continued for several days consecutively, according to the constitution of the patient and his toleration of it. In the more feeble it is ordered thrice a week—interposing a day of repose between each upon which the purgative is used, resuming the same again once or twice a month, at intervals of about fifteen days. After some months, its employment every thirty or forty days suffices. But, I remark, that which is a principal and indispensable part of the treatment is, the advice to my patients to be on their guard to use this purgative drink each time that they have the first indications of an approaching access of gout; for truly I have always and invariably seen, and can assure

one upon the faith of my honor, that taking this drink two or three times upon the first appearance of the symptoms of gout, its access will completely and entirely vanish. This fact has been observed by me so often, and with such precise evidence, that I do not hesitate to proclaim it certain. The reason is, I am entirely convinced, that we can any day verify it with constancy and certainty, and with identical results each time that it is subjected to the proof. It is nevertheless very important, and I may say a radical condition of this treatment, that the patient who suffers from the first attack of gout should learn to know and distinguish the symptoms which are the usual precursors. Such are those certain special perturbations in the functions of the stomach, from whence arise want of appetite, tension in the region of the stomach itself or the hypochondrium, flatuosities, feeling of malaise, and of unusual heaviness of body. Some are advertised of it by formication, unaccustomed itching, or even a notable coldness of the lower extremities, in whom also there are even painful cramps, and, as Barthez observes, sensations analogous to that produced by wind blowing along the muscles of the thigh. Baglivi observed, as an almost infallible sign of an approaching attack, the turgescence of the veins of the parts about to suffer. The sleep is interrupted, unquiet, and light, from whence it happens that some are seized with a profound depression of spirits; others are rendered irascible, and give themselves up to attacks of anger upon the slightest cause. Van Swieten said that he knew personally some of the most learned men, and of particularly benign and placid dispositions, who knew with certainty when an attack of gout was approaching, by a change for the worse in their dispositions occurring a few days previous. They have, besides, frequent eructations, borborigmi, and frequent escape of gas per ano. Sometimes there is obstruction, sometimes diarrhoea. In others, the invasion of gout, as was observed by Sydenham, Barthez, and Van Swieten, was only preceded by a state of unusual good health and increase of appetite, of joyousness, and more marked amatorial propensity. I say, that these symptoms should be well observed and kept in memory by those who are verging upon a first attack of gout, for they will enable them to obtain the earliest indications of its appearance. It would also be a commendable diligence in the physician to apprise patients of this, and urge upon them the above considerations. It is not so necessary for those who have become veterans in this most painful service, for their own sad experience does not permit them to forget.

"The other remedy which I adopt as an auxiliary of the first is the juice of the field-chicory (endive succory) taken repeatedly every morning upon an empty stomach, in doses of three ounces, made more mild and operative by an ounce of syrup of the wild strawberry. These are medicines easily borne, and by no means nauseous. But it is necessary to employ it perseveringly each day, and during a year, well understanding that they are to be discontinued when the purgative becomes necessary. They can be used at any stage of the disease. It can be used at every stage, for it is well preserved in the syrup of strawberries. In this section it is impossible to obtain the chicory fresh during the winter, to press out the juice; then it suffices to use an infusion, or even a decoction made with boiling water, on the preserved roots, collected during the spring, and well preserved. This remedy soothes the stomach and materially influences the regularity of digestion, keeping the bowels daily open, and maintaining a salutary influence upon the liver and intestines. Much space would be required to detail all the praise which the most respectable practitioners, and, above all, Galen, attributed to chicory, especially the wild, as being more bitter, vaunting it as an excellent stomachic, diuretic, temperant, or, to use more common expressions, refreshing and laxative. In reference to the strawberry, the observations left us by Linnæus are very valuable—of his having found it a most prompt and efficient remedy in gout, which tormented him bitterly until he ate strawberries in sufficient quantity. [The classical scholar will be reminded of Rousseau's testimony regarding the beneficial influence of the strawberry season upon his attacks of renal disease. Golding Bird also refers to the vegetable acids contained in this, as very naturally relieving this class of patients.—*Trans.*] This fact I read, some twenty years since, in the

'Annali Medico-Chirurgici de Roma,' published by my distinguished friend, Telemaco Metaxa, whom death, too soon, alas! robbed from the ranks of science, and whom the Roman medical school deplored. And since, when I experimented among those sick with calculus and diseases of the kidneys, upon the utility of the leaves and roots of the wild strawberry, its utility, as observed by many old country people, those most faithful preservers of popular traditions, brought more in mind the observation of Linnaeus; and I commenced to use, with much confidence, the plant, both in gout and disease of the kidney, which are known to depend upon the same morbid principle. My confidence in it has never been weakened by experiment, but each day has become firmer.

"Here, then, is the whole plan of treatment adopted by me in this disease, and which has thus far fortunately fulfilled all my expectations. It is very simple, unexpensive, easily applied, and accompanied by no objectionable features. I am in the habit of prohibiting my patients the abuse of certain articles of food and drinks, which are injurious in their effects upon digestion, or in being too heating to the stomach—as, for example, milk, cheese, salt meat, alcoholic drinks, aromatic substances, meat kept too long, &c. But observe, that it is only the abuse of these that I regard as incompatible with the cure of gout. I do not think it advisable to weaken the strength of those liable to it by too severe a diet, or by a certain rigorous abstinence, which first annoys him, and finishes by bringing on a most painful depression, makes him impatient of the restraint imposed, and causes him to throw himself into the opposite course of unbridled excess, regardless of every thought of cure, prevention, or hygiene. For myself, I believe that moderation renders healthful certain articles of food and drink, just as a proper dose of certain poisons is beneficial rather than hurtful. Health lies in temperance. *Abstinence* and *sustenance* were the two precious words, according to Epictetus, which in themselves contained even a moral philosophy. It is in this that the value of the above medicine consists."

ART. 33.—*Treatment of Chronic Rheumatism with Arsenic.*

By DR. JAMES BEGGIE.

(*Edinburgh Medical Journal*, April, 1858.)

It was at the close of the last century that cod-liver oil was accidentally introduced into practice, in the wards of the Manchester infirmary, as a remedy in chronic rheumatism. It was in the same place, and in a similar manner, some years subsequently, that arsenic was first administered for the cure of that disease. In the writings of Haygarth and the elder Bardsley will be found many cases illustrating its efficacy. In more recent times, it has not disappointed expectation. Speaking of the use of arsenic in chronic rheumatism, Dr. Christison says: "I have known several cases of this nodosity of the joints, as some authors term it, get well under the continuous administration of arsenic for some weeks; and it appeared to me that the commencement of the cure concurred with the first development of the physiological effects." "Arsenic (says Dr. Fuller, one of the latest writers on rheumatism), judiciously administered, and carefully watched in its effects, is one of the most valuable remedies in the chronic forms of rheumatism."

Many years ago, an industrious workman, approaching the decline of life, applied to me for the relief or cure of the crippling and painful swellings of the small joints of his hands, and particularly of his feet, under which he had long labored, and by which he had been rendered utterly unfit to pursue his usual avocations. The pains became aggravated at night, and under vicissitudes of temperature, and the patient was sensitively alive to changes of weather. It was with great difficulty and considerable suffering that he had been able to hobble to my door. When I speak of his case as one of chronic rheumatism, I sufficiently describe it. Under remedies external and internal, orthodox and empirical, he had derived no benefit; and seemed almost hopeless of relief. He was ordered to take five drops of the liquor arsenicalis after each meal, and to add one drop every third day till the eyelids became affected. He faithfully followed the prescription for many weeks, and underwent the

trifling disorder which characterizes the operation of the drug. He continued his attendance for several months. The knobiness and stiffness and pain of his joints gradually subsided and disappeared; he walked repeatedly to my house, a distance of a mile and a half, with ease and comfort; he improved in general health; at last he ceased his attendance, he returned to his workshop, and I saw no more of him.

A married lady, in the prime of life, the mother of several children, the descendant of gouty ancestors, and a sufferer in early years from painful and disordered menstruation, consulted me last autumn for symptoms corresponding in some measure with those exhibited by this workman. She was very lame from the stiffness, swelling, and deformities of her toes and ankle-joints, and quite incapable of holding a needle or directing a pen, from the painful nodosities of her fingers and hands, the distorted appearance of which presented a remarkable uniformity on both sides of the body—symmetrical, in obedience to the law of blood-diseases, as noticed by Dr. Budd. She had feverish, restless nights; a worn-out, emaciated look; a tendency to hectic paroxysms; a depraved appetite; a loaded tongue; along with copious lithates in the urine, and considerable derangement of the biliary secretions. These symptoms had supervened on a miscarriage she had suffered in the spring, followed by a protracted and anxious attendance on a near relative during a dangerous illness. The severity of the attack had, in a great measure, subsided before she came under my care. She had been judiciously treated in the north of England, where she usually resided; colchicum, iodine, and various other remedies had been employed, but her disorder went on. After it had been corrected to some extent by depurents and laxatives, without any relief to the local disease, she was ordered to take the liquor arsenicalis in the usual dose, and with the usual instructions. She continued two months under my care; the medicine was taken regularly during that time; no well-marked physiological effects ensued; but a gradual improvement in the condition of the hands and feet took place; she was able to walk with comparative comfort, and to handle her knife and fork with ease. Her general health had improved, the secretions of the kidney and liver had assumed a normal character; she added to her usual remedy the free use of lemon juice, and an occasional warm bath. She left Edinburgh with instructions to continue the arsenic, and begin the use of cod-liver oil. I learned, in the course of a month, that she had made progress towards ultimate cure; that the pains, and swellings, and stiffness were gradually subsiding; that a fulness of the eyelids had been observed, along with a dryness of the mouth and tongue; that she had intermitted the use of the arsenic for ten days, in consequence of these symptoms concurring with uneasiness and slight pain in the stomach; but that she had failed to witness any of the other phenomena for which she had been directed to watch. I subsequently learned that, with the exception of the short interval referred to, she had persistently taken the arsenic for three months, without any other unpleasant consequences than those alluded to; and had, on the contrary, during the time it was suspended, experienced some increase of the pain and stiffness of the small joints, which had, however, given way on her resuming the medicine. She was directed to continue the use of the mineral in diminished doses, and to adhere to that of the cod-liver oil. The last accounts state that she is greatly improved in health, and able to walk with ease to a considerable distance.

The case of the lady differs in some respects from that of the workman. His presented the true characters of chronic rheumatism; hers manifested those of rheumatic gout, as it is called, a painful and obstinate affection to which females suffering from disorder are peculiarly liable. It will be remarked, that in the former case the mineral acted quickly and successfully; in the latter its effects, both physiological and curative, were slowly and imperfectly developed. The cases together, bear witness to the correct observations of Dr. Bardsley, and the earlier exhibitors of arsenic in chronic rheumatism—that while in the one form of disease the medicine will be found to cure without assistance, in the other form it will be necessary to call in the aid of other remedies. Still, in the language of Dr. Fuller, it will be found “a faithful ally.”

ART. 34.—*Coffee and Lemon Juice in Ague.* By Dr. VAN HOLSBECK.

(Presse Belge, and Montreal Med. Chronicle, March, 1858.)

Van Holsbeck draws attention to a mode of treatment which he has found useful. Infuse an ounce of well-roasted coffee in three ounces of boiling water, and having strained the fluid, acidulate it with lemon juice. The whole is given at once, five hours before the paroxysm.

ART. 35.—*Calcareous Salts in the Treatment of Rickets.* By Dr. WM. BUDD, Physician to the Bristol Infirmary.

(British Med. Journal, June 7, 1857.)

Dr. Wm. Budd states, that he has derived better results, in the treatment of rickets, from the compounds of lime, than from any other remedial means. In cases tending to rickets, too, where children with large heads, tumid bellies, and pasty complexion, whose spines are too weak to support their bodies, who are slow in intellect, and backward in teething, and have reached the age of eighteen months or more, without showing any desire to take to their feet, the beneficial influence of calcareous compounds is equally manifest. In such cases, Dr. Budd gives five or ten grains of phosphate of lime, in chalk mixture, thrice daily, adding a simple chalybeate if anæmia is palpably present. At the end of a fortnight, the improvement of the patient is generally conspicuous. Dr. Budd believes that the deterioration in the teeth of the rising generation is due to the insufficient supply of the inorganic constituents of these organs in the food of children, and suggests that children in cities should be fed, in part, during dentition, on biscuits containing a proportion of salts of lime.

ART. 36.—*On the Use of Ox-gall in Hypertrophies.* By Dr. BONORDEN.

(Berlin Med. Zeitung, No. 1, and Medical Times and Gazette, Oct. 2, 1858.)

Dr. Bonorden believes that this remedy is much less employed than it deserves to be. It has usually been employed internally only as a resolvent in chronic constipation, and externally in opacities of the cornea. He believes it exerts a special effect on the metamorphoses taking place in the capillaries, and for that reason is highly efficacious in all forms of hypertrophy. In induration and hypertrophy of the *mamma* it exerts a surprisingly rapid effect, and in this way tumors and indurations have been dispersed by him which would have been by others removed by the knife. He usually employs it in combination with olive oil, adding conium if there is pain, and liq. ammon. if there is torpidity. The following formula is very useful: R. Fell. tauri inspiss. ℥iii; ext. conii mac. ʒj; saponis natronat. ʒij; olei oliv. ʒj; M. and rub in four times daily. Formerly he was in the habit of excising hypertrophied *tonsils*, a practice he has quite left off since he has been aware of the powerful agency of this substance. The gall, rubbed up with water into the consistency of an ointment, is applied by means of a good-sized camel's-hair pencil twice a day to the entire surface of the tonsil. It causes a slight irritation, which lasts about half-an-hour, and is succeeded by an augmented secretion of mucus. Unpleasant to the patient at first, he soon gets accustomed to it; and indurations which have lasted for years give way under its use in a surprisingly short time. In all hypertrophic affections of the *eye*, as hypertrophic opacity of the cornea, pannus, and staphyloma, the ox-gall does good service. Either the fresh gall may be dropped into the eye several times a day, or it may be applied to it with a pencil. In various other hypertrophies, which are accessible to external applications, we may resort to it, as when they affect the ear, mouth, vagina, uterus, or skin. He suggests its employment in hypertrophy of the heart, in consequence of the remarkable power it possesses of diminishing the action of this organ.

ART. 37.—*On some of the more Uncommon Results of Chronic Lead-poisoning.*
By Dr. H. FEARNSIDE, late Physician to the Preston Dispensary.

(*Liverpool Medico-Chir. Journal*, July, 1848.)

The following cases exemplify the influence of lead upon the nervous system. The comparative rarity of this form of lead-poisoning, the facility with which it may be confounded with other and very different conditions, and the importance of an early recognition of its cause, combine to render it a subject of very considerable interest.

In an outskirt of the town of Preston there lived, about two years ago, a small family, consisting of a middle-aged man, his wife, and a female dependent. Although the water-supply of the district was abundant and excellent, the house which they inhabited was only provided with rain-water, which was collected in a leaden cistern. This arrangement was adopted from economical motives by the occupier, who was also the owner of the house, and a man of very penurious habits. For several months the water was in constant use for every purpose, without the production of any marked effects. The man's wife, a delicate woman of about forty-five years of age, was the first to become indisposed. She suffered from gradually increasing debility and loss of flesh, with disturbance of the digestive functions and failure of the appetite. But as concurrently with the appearance of these symptoms the catamenia ceased, she paid but little attention to them for some time, thinking them incidental to her age. After their existence, however, for several weeks, she applied for medical advice. She then complained, in addition, of slight feverishness, cough, and pains in the limbs, especially in the muscular parts of the thighs. After the persistence of this state for some time, the muscles of the arms became painful. On a sudden, the complaint left the extremities of the body, and seemed to concentrate itself upon the abdomen, in the form of a violent attack of colic. On the declension of this she began to suffer from severe pain in the head, especially in the occipital region; and shortly afterwards the nervous system became decidedly implicated. The cerebral functions were strangely disturbed. Various hallucinations showed themselves. Erroneous ideas were formed as to the identity of herself and those around her, and the situation in which she was placed. A mild, but easily controlled form of delirium arose. For some days, this alternated with a different state; if she attempted to speak to those around her, she seemed to have difficulty in finding language, and before she could succeed in conveying her meaning, the idea fled, and a jumble of unconnected words was all that escaped her. And now the condition of the nervous system became one of apathy. Impressions were made upon the senses with difficulty, and speedily vanished; her attention was no sooner gained than it was lost; and she remained for hours at once in a state of semi-consciousness. At this stage, phenomena were occasionally present, approximating to those described as characteristic of catalepsy and ecstasy. On placing the arms, for example, extended in any particular position, they remained fixed in it for some minutes, and then slowly relaxed and sunk down; at other times, she would remain for a considerable period, unconscious of everything around her, but with her eyes fixed, and gazing intently before her. On one occasion, after the action of a purgative, she was for about twelve hours quite insensible. She lived for five weeks after the appearance of the cerebral symptoms, and for four months from the time when her health began to break down. Before her death, she was seized with convulsions of an epileptiform character, which continued with short intervals for forty-eight hours, and upon the cessation of which she passed into a state of coma, and died.

The body was examined thirty hours after death. There was great emaciation; the muscles of both arms and legs were much wasted. The head only was opened. The pia-mater was somewhat injected, but there was no thickening nor opacity. The brain generally was softer than natural. Both gray and white portions were somewhat modified in color, having acquired a dirty pale yellowish hue. No other morbid appearances were perceptible.

Some time before the death of the patient whose case has just been narrated,

her husband and niece gave evidence of being under the influence of the same poisonous agent from which she had suffered. In both, repeated attacks of colic were produced. In her niece, a robust young woman of twenty-five years, no other symptoms occurred; but in her husband, a man of fifty, the complaint displayed itself in the muscles of the limbs and in the nervous system. As the colic subsided, he began to experience severe pain in his arms and legs. The muscles moving the arms upon the shoulders gradually failed, and eventually became almost powerless. For some time also he suffered from severe pain in the lower part of the left side of the chest—apparently seated in the intercostal nerves. As the affection developed itself, it assumed more of the character of an acute disease than in his wife. The brain became involved; violent delirium set in, and continued for some days. As the delirium declined, the mind did not recover its clearness and integrity; on the contrary, his sensations and perceptions were vitiated and erroneous. His sense of taste was perverted, so that he no longer recognized ordinary articles of food. Various morbid ideas took possession of him, and some of them remained, and continued to manifest themselves for many months after his apparent restoration to health. His recovery was very slow, and for several weeks he oscillated between life and death. In all three instances the blue line of the gums around the teeth was well marked.

A few comments upon the cases, an outline of which has just been given, may not be without interest.

In the first of them, the absence, for a considerable time, of any colic, and the gradual and insidious manner in which the poisoning took place, led at the outset to a misapprehension of its nature. The cause, indeed, is one which may readily escape notice; for in most large towns, the supply of water, if not unexceptionable, is at all events so free from any noxious matter, that it rarely enters into our consideration as a source of disease. And when water contaminated with lead is habitually drunk, its effects may be such that some care is requisite to distinguish them from very different pathological conditions. Lead so introduced into the body may deleteriously influence the nervous and muscular systems directly, without the production of any premonitory colic. Indeed, colic is by no means an invariable precursor of the other forms of disease occasioned by lead. Thus, Tanquerel des Planches (*Traité des Maladies de Plomb*) mentions that in the patients noticed by him, suffering from lead-diseases, out of 102 examples of paralysis, there was no colic in 39 instances. In the cases under review, it was apparent that there existed a faulty state of the blood; but the fugitive muscular pains, the slight feverish disturbance, and the scanty secretions, caused this to be ascribed to the presence of a rheumatic diathesis. It very soon became evident, however, that this impression was an erroneous one, and, on more minute investigation, the true nature of the complaint was revealed.

The peculiar form in which the affection manifested itself is deserving of notice. The occurrence of convulsions as a consequence of lead-poisoning has long been known; but it is not so generally recognized that delirium and coma may result from the same cause. In the case first related, a condition allied to catalepsy and ecstasy was occasionally present. This also has been noticed by Tanquerel des Planches in two instances.

It is under such circumstances as those present in the cases just given, that the simple test of examining the gums of the patient is so important, and affords such valuable information; for it may be safely stated that the blue color of the gums around the teeth is never present except in individuals who either are, or have lately been under the influence of lead, and in such it is very rarely absent. But its presence alone will not suffice to determine the nature of the disease, inasmuch as those who are habitually brought into contact with lead are equally liable, with the rest of the community, to other cerebral disorders.

SECT. II.—SPECIAL QUESTIONS IN MEDICINE.

(A) CONCERNING THE NERVOUS SYSTEM.

ART. 38.—*On Headache.* By Dr. SYMONDS, Physician to the Bristol Infirmary.

(*Medical Times and Gazette*, May 15, 1858.)

The following statistical memoranda and conclusions are taken from one of the Goulstonian lectures for 1858:—

"*Statistical Memoranda.*—In order to obtain some numerical data as to the frequency of certain presumed causes of headache, and as hospital registers would not supply information respecting cases which only casually come within their scope, I distributed some circulars of queries, for obtaining replies to which I am much indebted to many of my professional friends. They were queries which were easily answered, and that the answers were for the most part given thoughtfully and carefully, was obvious from the consistency in themselves, and from the general agreement between the different respondents. Though I cannot bring forward any very new results from the answers, yet they afford confirmation to many of the remarks which I have ventured to make upon the disorder under consideration.

"We may first direct our notice to those points which indicate a neurotic susceptibility on the part of the subjects of the disorder.

"Of 90 cases 76 were females. These numbers established more strongly than I should have suspected, the fact which is testified by most of the old writers, that females are more frequent sufferers. If we endeavor to ascertain whether this liability of females bears relation to their sexual functions, we do not find much to support this supposition. Of the 76 females, 40 were single; out of the 76 there were 35 who referred to the periodical health as having been in some way connected with their attacks; very few dated from puberty, but a large number from early life. Of the 22 out of 90 who referred to previous illness, none specify illness referable to pregnancy or parturition. In 11, loss of blood is mentioned, but while some speak of it as artificial, none refer to menorrhagia, or to the floodings of abortion or childbed. Now, every practitioner must have noticed that women who have suffered from such losses have been very liable to headache, but it is clear from the replies in general that the specially feminine proclivity to headache is independent of these casualties. But we have said that 35 did refer to the periodical health, and the result of my cross-examination in many of these cases brought me to the conviction that the menstrual function only presented occasions of offence, exciting causes as we often call them, but that the earlier antecedent was a constitutional liability not dependent on this function.

"Putting aside the catamenial function, we inquired into the mode of life, and found nothing to lead one to suppose that this was importantly concerned in the production of female liability.

"The predisposition more probably originates in the nervous system; and it is needless here to adduce proofs of what is admitted on all hands, that nervous mobility, irritability, hyperæsthesia, or by whatever other name we choose to designate susceptibility of nervous disorder, is oftener found in the female than in the male subject. It is likely to exist in organisms which evidence a capability of so much fineness and delicacy of perception, united with so much proneness to emotional excitement, and in which also we observe the functions of organic life to be so readily wrought upon by passing states of thought, sensation, and emotion.

"Of the exciting causes, I find that emotional disturbance has the highest number. Out of 90 cases, 53 declared this to be one of the causes of their attacks; 48 also considered that atmospheric states were to be blamed; and 25 specified thunder.

"It would be little better than a platitude to say that it is far more difficult to trace the origin of a predisposition superinduced on the system, than to

indicate causes nearer at hand. Accordingly, in these answers, although the questions afforded sufficient opportunities of stating circumstances in the mode of life, occupation, habits, climatic influence, &c., which might have begotten the tendency, yet very little light is thrown on this subject by the answers. And I incline to the belief, that the cause of this tendency lies too far off to be reached by reference to the experience and consciousness of the individual. It lies in the original mould of the nervous system. This conclusion is supported by the fact that 44 had suffered from very early life, and a large proportion of these use the formula 'as long as they could remember.' An additional presumption appears from the proof of inheritance of the liability. In 19 cases the mother is mentioned, in 9 the father, and in 12 both parents; in all, 40 give explicit evidence of hereditary predisposition, and a few others mention cases in collateral branches.

"The negative evidence as to *diet* is curious. Out of the 90 cases only 19 blame their diet, and these, if they specify any at all, only mention some article of food which has been at times an apparent and immediate cause of disturbance: of the remainder, 62 deny that diet has anything to do with their attacks; and 9 make no response, or a very indefinite one.

"For these negative results as to diet, there are two obvious reasons: first, that people are very slow to observe the gradual or habitual influence of any system of diet into which they have fallen by custom or association; and, secondly, that if food does not produce marked disagreement in the first stages of digestion, they are ignorant of what passes in the duodenal and subsequent processes.

"As to the influence of *climate* in augmenting the predisposition, more evidence is given: 39 either say that climate is a matter of indifference, or they make no answer. But 29 seem very clear that they are least liable to attacks of headache in places where the air is dry and bracing; 6 commend cold atmosphere, 6 condemn it; 8 praise warm atmosphere, 3 dislike it; 6 are in favor of sea-air, and 4 are averse to it. I do not attach any great importance to the paucity of answers as to marine air, because it was not particularized in the questions. Still, if sea-air, *quâ* sea-air, had made any great impression, either as a friendly, or as a hostile agency, I think it would have come out in the answers.

"*Fatigue* is mentioned as an exciting cause by 32, though, from inadvertence, the queries contained no pointed reference to it.

"Some of the questions were framed with the view of ascertaining how far numerical statements would bear out the prevalent notion of a connection between headache and disorders of the digestive organs.

"Out of the 90 cases, 33 said that *vomiting* or nausea occurred in their attacks; 12 reported *nausea only*; 35 experienced neither; 10 made indefinite answers, or none. Of the 45 cases of vomiting and nausea, 33 declared that the vomiting came on after the accession of pain. Of the rest, 6 spoke of the sickness as simultaneous, and 6 gave no evidence on the subject.

"To the question whether the pain had been relieved or removed by sickness; 18 of the 33 said they had been relieved sometimes or partially, and 2 said the pain had given way after prolonged vomiting. Of these one used the expression, 'after bringing up pancreatic juice.'

"These answers would scarcely lead to the inference that the headache depended on the presence of anything in the stomach; for though 18 of those who had vomited spoke of being relieved, this term is very vague, and it is all but impossible to separate the mere effects of the act of vomiting on the circulation and the nervous system, from what might be due to the ejection of food or morbid secretions from the stomach.

"Not more satisfactory are the replies to the question as to the action of the bowels. Of the 90 only 12 distinctly affirmed any relation between their headaches and the action of the bowels; 54 denied any connection; 17 gave ambiguous answers, and 7 were silent.

"And in reply to whether they had derived relief from aperients, only 15 gave distinctly affirmative answers; 17 said 'sometimes,' or used other qualifications; 6 were doubtful; 3 were certain that they were made worse by

aperients; 36 declared that they were not relieved; and 13 gave no distinct response. These replies do not tell much either way. When aperients have been taken the pain generally subsides spontaneously before the bowels have acted; and, therefore, even with all the disposition which most patients manifest to attach undue importance to this function, they would not assign the relief to the action if the action occurred subsequently to the relief of pain. And yet we know theoretically that they might do so, since the artificial impulse given to the function of the small intestine may have removed sources of irritation. On the other hand, the affirmative respondents are as likely to have unconsciously set their replies into consonance with their preconceived notions of the value of aperients.

"To have asked my catechumens whether their headaches had anything to do with bile or bilious disturbance would have, I well knew, called forth a chorus of 'Yes.' But as I should have been none the wiser, I thought it better to limit the question to the 'accumulation of bile manifested by the skin.'

"Of the 90, 65 were obliged to say 'No;' 14 gave a doubtful or qualified 'Yes;' and 11 were mute. When asked if they were liable to indigestion, 39 answered in the affirmative, but with qualifying terms, indicating that they were not quite certain about the matter.

"I will not trouble you with further details, but as far as these replies bear upon the relation between headache and disordered digestion, the evidence is, to say the least, ambiguous and unsatisfactory. But if any decided inference is to be drawn from it, we must conclude rather against the existence of such a connection in many of these cases, and we do not advance beyond the fact that when there is the disposition to cephalalgia, the digestive organs may afford occasions of excitement to that disposition.

"Two of the questions were intended to elicit facts as to the dependence of the attacks on hyperæmia. Of the 90 cases, 38 reported that their headaches were increased by the recumbent position, 27 that they were relieved, 5 were doubtful, and to 17 it was a matter of indifference. Of those who were relieved, some said that the position at first was painful, but afterwards that it became comfortable; and others appeared to think that the rest was quite as important an item as the recumbence. Change of posture, of course involving motion, almost uniformly aggravates the pain; and we may fairly suspect, that of those who say that the pain is increased by laying the head low, some have been deterred from fairly trying it by the first discomfort of the change.

"To the question whether the pain was relieved by stimulants, 35 answered in the affirmative, 30 simply denied, 8 reported it to be absolutely increased, and the remainder were doubtful or indifferent, or had never tried such remedies. I do not think that much value can be attached to these answers. A headache may be associated with passive congestion, and may be relieved by stimulants. It may be purely nervous, and yet aggravated by them, because in so tender a state of the nerves the slightest increase of vascular disturbance will increase the suffering, whether produced by exciting drinks, or as we have just noticed, by slight changes of posture.

"The inquiries as to the operation of these and other agents were made, chiefly to obtain information as to the pathology and etiology of the disorder. But one general question was put as to therapeutics: 'From what kind of remedies have you derived most relief?' The question was too wide; for, while some enumerate the remedies which have done good at the time of pain, and also those which have lessened the frequency of returns, others have confined themselves to the treatment which has relieved the attack: 26 specify benefit from *tonics*, *quinine* being mentioned oftener than any other; 15 mention *sedatives*; 11 insist on profound *quiet*; 4 speak well of *cold applications*, 2 of *warm*; 1 ascribes relief to *leeching*, and 1 (the same respondent) to *blisters*; 3 are so unenterprising as to have tried nothing; 12 have been altogether unsuccessful, and they now rely only on time and patience. The rest give vague answers, not requiring further comment.

"As far, then, as the information is positive, we may say that the evidence is in favor of tonics and sedatives.

"It is curious that in the whole series no mention is made of phlebotomy or cupping; and leeches are noticed only by one person. Had the same set of questions been answered five-and-twenty years ago, I presume that antiphlogistic remedies would have received more notice.

"Before closing this statistical attempt, I may mention that of the 90 cases 43 report that the attack comes on very early in the day—most of them on *waking*. It would be easy to speculate on the cause of this general fact. Some would blame the position in bed; others the long interval after food had been taken; others the state of the nervous centres belonging to sleep; others the diminution in the intensity of terrestrial magnetism in the morning. For my own part, I wait for further illumination on this as on many other topics belonging to the whole subject."

The conclusions to which Dr. Symonds arrives are these:—

1. That headache has an importance of its own; and that, whatever connection there may be between this affection and the disorders of other parts of the body, the head itself is to have the chief consideration.

2. That headache, whether primary or sympathetic, considering the frequency of its occurrence, is rarely dependent on disorder involving danger, or serious impairment of the function of the brain.

3. That symptomatic headache, even when belonging to grave lesions, may be benefited by the treatment applied to the primary forms.

4. That the primary headache, whether caused by an original susceptibility in the ganglionic nerves of the brain or by a morbid sensibility resulting from previous disease or weakness, is to be relieved by sedatives, and to be cured by tonics and nervines. He will be the most successful practitioner who can best wield those two great weapons, quinine and arsenic.

5. There is a natural tendency in this disorder to decline with advancing life.

ART. 39.—*On the Treatment of Delirium Tremens.* By Dr. LAYCOCK, Professor of the Practice of Medicine in the University of Edinburgh.

(*Edinburgh Medical Journal*, Oct., 1858.)

The general rules for treatment of delirium tremens are simple: 1. The patient should be placed in as complete a state of muscular repose as possible. To this end, he should, if practicable, be kept in bed. Muscular activity necessarily exhausts the nervous system; hence, quiet of the muscular system facilitates repair of nervous energy. If, however, the patient cannot be kept in bed without mechanical restraint, it is on all hands allowed to be better not to restrain him, as the waste of motor power is much greater in the continued attempts the patient makes to keep from restraint, than in his usually quiet wanderings after unmeaning objects. Should his delirium be of the violent kind, absolutely needing restraint, chloroform would, perhaps, be in general a safer remedy than the strait-waistcoat, although not a remedy to be administered without serious consideration as to its fitness in each case. 2. All *sensational* stimuli should be removed, and all emotions, agitating thoughts, or anxieties, be prevented. 3. Food of a suitable kind should be carefully given from time to time; no alcoholic stimuli of any kind administered as articles of diet, unless specially indicated. 4. Where there is a tendency to diaphoresis, it should be encouraged as an elementary process. 5. The surface, and especially the feet, should be kept comfortably warm. If the head be hot, the hair may be cut short, and a gentle douche, for one or two minutes, applied every three or four hours; this is rarely necessary, however, much less shaving the scalp. 6. An experienced nurse must attend the patient. But, above all, it is essential that the practitioner be clear in his etiological diagnosis, so that he may be knowing as to the powers of nature. He should first determine whether the patient be under the influence of alcohol or not, and ascertain clearly whether there be any important complications. If the patient be alcoholized, and no important complications be discovered, he may consider the sleeplessness and delirium as of no great pathological importance, and calmly and confidently wait the result of a few days' judicious watching and general management of the case.

Dr. Laycock then examines some of the disputed points in the pathology and treatment of the disease.

1. *Is the delirium due to the withdrawal of alcoholic stimuli?* If this be not the fact, then the administration of spirits as a remedy is very questionable, if not wholly unjustifiable. Now, in only one of the twenty-two cases admitted into the Infirmary last summer, was there a shadow of ground for stating this; in each of the twenty-one the patient was alcoholized when admitted. In the twenty-second case (poisoning by opium) the grounds for the assertion were of the slightest; other far more probable causes of the delirium were in operation than the return to sobriety. I cannot recollect, in fact, any case in which I could attribute the delirium to a withdrawal of the liquor. I regret to find that I differ with so high an authority as Dr. Watson on this point. Dr. W. says ('Lectures on Practice of Physic,' 4th edition): "In a large majority of instances you will find that he has been an habitual drunkard; and very frequently that, from some cause or other, his habitual stimulus has been diminished or taken away." But then Dr. Watson goes on to qualify this statement, by adding, "Some accidental illness has befallen him, and he has been restricted to low diet; and, as a sailor would say, 'his grog has been stopped.'" So that, in fact, Dr. W. includes "illness" and "low diet" (very common exciting causes) with the stoppage of the grog. It would be interesting to have Dr. Watson's experience on that one point alone; I am much inclined to think it would correspond with my own. Dr. Wood, of Philadelphia, in his 'Practice of Medicine,' makes this disputed point a part of his definition of the disease. "This is the delirious affection," he says, "which follows the suspension of the habitual use of alcoholic drinks. Its essential character consists in the cerebral debility consequent upon the cessation of an accustomed excitement." Then, in describing the symptoms, course, &c., he goes on with "the first effects of the suspension of the stimulus are feelings of great weakness." . . . "Should circumstances, however, prolong the abstinence or privation, this preliminary condition becomes aggravated, and the disease is fully formed," &c. Now, all this is by no means true to nature, as all observers must acknowledge; the more the man drinks, the worse he is, until nature forbids more. Here, again, it would be interesting to have the data upon which these assertions are based. It would probably be seen that the delirium has been rather due to some "illness" coincident with the cessation of the stimulant, or to low diet, or to almost entire abstinence from food, or to want of sleep, or overwhelming mental anxiety, or some other *concomitant* causes. I dwell more especially upon this point in the etiology, because it is of vital importance as to the treatment of delirium tremens; and I therefore affirm distinctly and emphatically that I know of no recorded facts which contradict my experience—i. e. which prove that the affection is consequent, actually or virtually, upon the withdrawal of intoxicating drinks. Now, on the other side of the question the evidence is abundant. Multitudes of drunkards cease drinking without suffering from the disease, or from any approach to it. Dr. Craigie, in his very able essay on the affection ('Elements of the Practice of Physic'), says that he never witnessed an instance of this mode of development; and after perusing all the published cases extant, he could not perceive that any of them, excepting one recorded by Dr. Armstrong, afforded satisfactory evidence that the disease is induced in consequence of the sudden abstraction of spirituous liquors. Even that case, he adds, may be explained on other grounds. Dr. Craigie further states that none of the Continental physicians who have written on the subject support the doctrine; while Dr. Ware, of Boston, U. S., could not detect any such etiology in a large proportion of cases he examined. On the other hand, it is found that in the recorded cases, as in those I treated, the symptoms were most usually developed after a continued fit of drinking for several days, during which the blood had become charged with the liquor. I would finally refer to Dr. Alexander Peddie's valuable essay on the affection, as containing additional and most conclusive evidence on this point. It may, therefore, be now stated, as a fact beyond question, that the delirium of the drunkard is due to other causes than cessation from the use of alcoholic stimuli.

What, then, are the causes of the affection? Clearly, I think, not one operat-

ing singly or specially, but several acting together—what are termed by Sir William Hamilton co-causes. I have already indicated several of these. It is a subject, however, I need not dwell upon, as most systematic writers recognize the resemblance between the delirium attacking the drunkard, and that attacking temperate persons under certain conditions of the brain, the blood, and important organs; what is certain is, that drunken or sottish habits strongly predispose to the affection when those conditions arise. The etiology, therefore, of delirium tremens comes under the general etiology of forms of delirium not due to structural or inflammatory disease within the cranium, and is a question of medical psychology.

Is opium necessary to the cure of delirium tremens? Dr. Watson says ('Lectures on Practice of Physic,' 4th edition, p. 410), "The great remedy in delirium tremens is sleep; our most powerful means of inducing sleep are to be found in opium. The opium must be given in full doses; and it must be fearlessly repeated, if its desired effect do not soon follow. If the patients pass many nights without sleep, they will die. . . . After clearing out the bowels by a moderate purgative, you may give three grains of solid opium; and if the patient show no inclination to sleep after two or three hours have elapsed, you may begin to give one grain every hour till he does sleep." So, again, Dr. Wood, of Philadelphia (as deservedly high an authority in his own country as Dr. Watson is in this), describing the plan he follows, remarks: "Two grains of opium, half a grain of sulphate of morphia, or an equivalent quantity of one of the liquid preparations of the drug, are given every two hours, and steadily persevered in until sleep takes place, or a decided narcotic impression is evinced." How contrary all this is to my experience in the Royal Infirmary, is obvious. I will only here add, that I have lately seen three cases, in consultation, which were being treated after the method recommended by these eminent physicians, with no benefit. In two of these (very severe cases), my medical friends approved of my suggestion, that the administration of opium be suspended, and a simple treatment followed; and the results were most satisfactory. In the third, it was thought advisable to persist in the stimulant treatment, and the case finally ended fatally. The evidence in favor of the stimulant method, by opium, wine, &c., is, in fact, one-sided; those who adopt that method do not try the other. But experience abundantly shows that sleep, and therewith return to health, will come on naturally in delirium tremens without the use of any narcotics, or even any drugs whatever. Continued sleeplessness, although highly predisponent to morbid action, does not necessarily destroy a man. I know a gentleman who never slept a moment for a month, yet with no bad results. It is the causal and concomitant conditions of the sleeplessness which are to be dreaded. Hence, when sleep is induced by opium, and these conditions remain, the patient dies nevertheless. When sleep supervenes naturally, the causes of the delirium and sleeplessness are alike ceasing. The spontaneous termination of the disease in sleep is well known. Many years ago, Dr. Kuhn found no measure to answer so well as putting the patient into a dark cell, and "leaving the disease to work itself off spontaneously." Seamen, just after leaving the shore, are apt to suffer an attack, and have usually no treatment, yet recover after sleep. Esquirol and Calmeil treated their cases by the expectant method, using no narcotics, only diluents and warm baths, with repose; in the large majority of cases, recovery took place in four or five days. Dr. Ware, of Boston, watched and described the disease as it ran its natural course uninfluenced by remedies, and found that it was a self-limited affection; dating from the time when the state of entire watchfulness and delirium commences, he found that it terminates by natural sleep in not less than sixty, or more than seventy-two hours. The only cases in which death took place after sleep came on, were those which had been treated by large doses of opium. He treated twenty-nine cases on the expectant method, one died; twelve by emetics, one died; eight with opium, four died. Opium, then, is not necessary to the cure of delirium tremens.

Is opium a safe drug to administer freely in delirium tremens? It is a remarkable illustration of the influence which usage and routine exercise on the judgment, to find how unsuspectingly, as to its bad effects, opium is prescribed

in this class of affections. Patients who sleep and recover after its administration, sleep and recover, it is said, *propter hoc*. If they do not sleep, they have not had enough; but if they sleep and die comatose, with livid face and contracted pupils, then the disease, and not the drug, proves fatal. Here, I think, is a whole string of fallacies. Experience, rather than theory, is the safest guide; and that assures us it is never, under any circumstances, a safe proceeding to administer from five to ten or fifteen grains of opium in as many hours. Experience also shows, that in delirium tremens, while many have recovered without opium, and some in spite of it, none can be said to have died for the want of it. And if we were to inquire theoretically in what class of cases opium should not, or need not be given, we should find very few left in which it should. It is clear, that in the simple, uncomplicated, alcoholized cases, in which spontaneous recovery under judicious management is certain, opium is not needed, and is at least as dangerous, in the large doses recommended, as in the healthy state. Is it admissible in the complicated cases, as those with masked gout, cirrhosis of the liver, or Bright's disease—or with gastritis, bronchitis, pneumonia, pericarditis, meningitis—or in those laboring under some epidemic, as scarlatina, influenza, continued fevers—or with meningitis, or cerebral inflammation from mechanical injuries? In any of these it would be a dangerous practice indeed to give opium, in the large doses recommended by Dr. Watson and Dr. Wood. If, then, we exclude all the uncomplicated cases, and those thus complicated, how many remain for the heroic doses?

Is it necessary or safe to treat delirium tremens with alcoholic stimuli? If the patient be alcoholized at the very moment when it is necessary to prescribe for him, and is manifestly suffering from the effects of the alcohol, it seems hardly rational to propose that more should be given him "every two or three hours." Doubtless, people recover in spite of further doses—mainly, I think, because it is administered in diminished quantity: they may even recover after the administration of both alcoholic stimuli and opium; but it is to be feared that they sometimes sink under the remedies. If I am rightly informed, the stimulant plan, with alcoholic drinks and opium, has been usually followed at the Royal Infirmary, except from 1839 to 1842, with the following results:—

Termination of Cases of Delirium Tremens, Treated in the Royal Infirmary, Edinburgh.

	MALES.		FEMALES.		Total per cent. of deaths.
	Cases.	Deaths.	Cases.	Deaths.	
1st July, 1839, to 1st Oct. 1841 . . .	64	7	11	1	10.6
1st Oct. 1841, to 1st Oct. 1842 . . .	32	5	4	...	14.0
1st Oct. 1842, to 1st July, 1843 . . .	32	5	8	2	17.5
1st July, 1843, to 30th Sept. 1844 . . .	26	11	8	3	41.0
1st Oct. 1844, to 30th Sept. 1845 . . .	29	12	9	...	36.8
1st Oct. 1845, to 30th Sept. 1846 . . .	50	16	10	2	30.0
1st Oct. 1846, to 30th Sept. 1847 . . .	61	23	9	2	35.7
1st Oct. 1849, to 30th Sept. 1850 . . .	46	10	4	...	20.0
Totals	340	89	63	12	25.0

So that, of 403 cases of both sexes treated in the Royal Infirmary during 8½ years, 101 died, or 25 per cent.; of males only, the deaths were over 26 per cent. As a contrast to this, I give the following: Admitted into the Infirmary, under my care, 15 males, 9 females—total, 24; deaths 0. In private practice, 4 males; death 1 (under opium and alcoholic stimuli). Dr. Peddie treated "upwards of 80 cases in males, many of them very severe ones," without opium, "with uniform success," i. e., without a death. That the Infirmary mortality of past years is greatly in excess, for some special reasons, is obvious from

other data. Dr. Rogers reports, that of 75 cases admitted into St. George's Hospital during five years ending 1853, 14.6 per cent. died. The mortality in the General Hospital at Calcutta from 1848 to 1852, and in the Medical College Hospital, 1851-1853, was 15 per cent. in 321 cases. In his report on the health of the army (1853), Colonel Tulloch gives the mortality of the cases of delirium tremens in Great Britain at 17.6 for the infantry, and 13.8 for the cavalry. Of writers, Calmeil states the mortality at 5 per cent. (but he treated expectantly); Bougard at 19 per cent., and this is the highest I know of, yet it is much below that in the Infirmary. If, however, we take the cases admitted between 1st July 1843, and 30th September, 1847 (Dr. Bennett's Statistics), we find that 62 male patients died out of 166, or 37½ per cent.—an enormous mortality, and only paralleled by that of the Glasgow Infirmary. From 1842 to 1848, there were 35 cases admitted to that institution, and 17 died, or nearly 50 per cent. I have no details as to the method of treatment followed; but I believe that Dr. Peddie is correct in saying, "The common practice [in Scotland] has been, and, I have reason to know, in many quarters still is, to give from one table-spoonful to a wine-glass of spirits every two or three hours, either alone or combined with opium." I think it will be also admitted that such is the general practice elsewhere; and, consequently, that the other statistics given above may be taken as indicating the results of treatment by opium and alcoholic stimuli. The great disparity between the *lowest* death-ratio of these, and the results of the expectant method, is so great, that it cannot fail to arrest the deep attention of the thoughtful practitioner.

Is the treatment by tartar emetic and vomits necessary? A simple emetic will be useful, if there be bile or acrid stuff in the stomach. Dr. Klapp, of Philadelphia, observing that the disease was apt to occur upon the cessation of an attack of vomiting in the intemperate, and that spontaneous vomiting relieved it, theorized thereon and came to the conclusion that it was judicious to give two grains of tartar emetic every fifteen minutes until it operated as an emetic. The stomach and nervous system being often half paralyzed sensorially, large quantities (more than gr. xvj) were sometimes found to be necessary to induce vomiting! It is not possible to esteem this as other than a most dangerous proceeding. Dr. Graves administered tartar emetic more carefully, with the view of combating vascular excitement, and combining it with small doses of opium. In that particular class of cases in which the delirium is more sthenic than asthenic, and especially in those in which the blood is not alcoholized, this combination has been found beneficial; it is often thus used in cases of recurrent maniacal delirium. Dr. Peddie had arrived at the use of tartar emetic before he knew of Dr. Graves' views, or that Stoll, Göden, Klapp, and others, had recommended it. He gives it in doses of gr. ½ to gr. 1, in simple solution, every two hours, believing it exercises a "direct influence in reducing the vascular excitement of the brain, soothing the nervous system, and diminishing muscular power; and its more direct action is exerted on the functions of the skin, kidneys, and intestinal canal." Although I feel some doubts as to this theory of its action, I can well understand that tartar emetic, judiciously administered in the way Dr. Peddie recommends, may be of service for the alleviation of the symptoms in some of the more violent cases. Nevertheless, in the mild forms of the disease—and these constitute by far the most numerous—I should prefer to wait upon nature, and treat the symptoms, as they arise in each individual case, according to the general rules of art. Delirium tremens, like all affections of the brain, is little amenable to remedies if associated with important cerebral disease, so that a few doses of tartar emetic, more or less, are of little importance in that class; while, when not so associated, or not complicated with important visceral disease, it happily soon terminates in health, if nature be left to do her work.

The practice of bloodletting in delirium tremens, and the administration of large doses of calomel, digitalis, and other active drugs, are sanctioned by so few systematic writers, that it is unnecessary to examine into their worth. It is to be hoped that the use of other heroic remedies will equally pass out of use, and a method of treatment be followed, grounded upon an accurate know-

ledge of the natural history and course of the affection in each case, to the exclusion of false theories founded on imperfect observations.

ART. 40.—*The distribution of the mortality from Hydrophobia in England.*
By Mr. J. R. RADCLIFFE.

(*Medical Times and Gazette*, July 3, 1858.)

Mr. Radcliffe commences this paper (which is intended to illustrate certain peculiarities in the mode of extension and prevalence of epidemic diseases, and to offer suggestions for the better observance of such diseases) by stating that the sources from which he had obtained the particulars that he was about to lay before the Society were the Bills of Mortality for the Metropolis and the Annual Reports of the Registrar-General. The Bills of Mortality for London were commenced, as a regular series, in 1603, but no death from hydrophobia is recorded in them until the year 1728. In the annual bill of that year is the entry, "Died from the bite of a mad dog." The term "hydrophobia" was first made use of in the Bills of Mortality in 1819. The absence of any record of death from so well-marked a disease as hydrophobia in the Bills of Mortality, for a period of 125 years subsequent to 1603, is a fact of considerable interest, and the great rarity of the disease, if not its entire absence from the metropolis during that period, may be assumed, notwithstanding the imperfect character of the mortality records of the period. After 1728, deaths from hydrophobia were frequently recorded in the yearly bills, although intervals of one, two, three, or more years, when no deaths were returned, are not uncommon; but in no instance does the number of deaths from the disease entered in a yearly bill exceed 4 until 1824, when 7 deaths occurred. After this year intervals where no deaths happened are rare; and in 1825, 4 deaths were recorded; in 1826, 4; in 1827, 1; in 1828, 2. The bills for 1829 and 1830 are wanting. In 1831, 6 deaths were returned; in 1832, 3; in 1833, 4; in 1834, 8; in 1835, 0; in 1836, 1; in 1837, when the Registrar-General's returns commenced, 7 deaths occurred in the latter half of the year alone; and in 1838, 12 deaths happened. After 1838, the number of deaths annually did not exceed 4, until 1854, in which year 9 deaths from the disease occurred. The Registrar-General's returns date only from July 1st, 1837. Brief as is the period over which the returns extend, an hiatus of five years occurs from 1843 to 1847 inclusive, during which period no account of the causes of death in the different registration districts is given. So far as the returns are available, they show considerable variations in the amount of mortality from hydrophobia in the whole of the registrative districts. Mr. Radcliffe having completed his examination of the records of mortality from hydrophobia in England, proceeded to direct more particular attention to the following points: (a) The absence of any record of death from hydrophobia in the London bills of mortality for a period of 125 years previous to 1728, and the almost constant occurrence, year by year, of deaths from that disease since that period. He regarded those facts as being of considerable interest; and suggested that they might be regarded as indicating a periodical change, the intervals of which are of long duration. (b) The marked increase in the amount of mortality from hydrophobia in London since the commencement of the present century, is well worthy of note. This increase was contemporaneous with an unusual prevalence of epizootic hydrophobia. (See 'Maine's Canine Pathology,' p. 99.) On the other hand, Dr. Layard writes ('Essay on the Bite of a Mad Dog,' London, 1763, p. 120) that there was a general alarm of canine madness in London, Westminster, and many parts of England, in 1760. No indication of an unusual prevalence of epizootic hydrophobia in London and Westminster is to be found in the bills of mortality for that year; indeed, from 1760 to 1766 inclusive, no death from hydrophobia was recorded in the metropolis. (c) The variations in degree of prevalence of hydrophobia in London from the commencement of the bills of mortality to the present time, and as judged of by the amount of mortality, may be regarded as indicia of periodical phenomena; thus considered, there would seem to exist, with regard to the disease, a law of greater variation, the periods of increment and decrement of which occupy an indeterminate cycle

of many years; and a law of lesser variation, the periods of which of comparatively short duration are manifested during the period of increment of the greater variation. As to the period of increment of the greater variation commencing in 1703, it presents many slight variations until the beginning of the present century, when the degree of intensity rapidly increased until the year 1838. But it remained to be seen whether the culminating point was reached in that year, or whether the maximum has still to be attained. (d) The apparent gradual spread of hydrophobia from district to district over a great portion of the kingdom during the whole period observed in the Registrar-General's reports, is a fact of considerable interest. Mr. Radcliffe advanced reasons for the belief that the theories usually entertained to account for the extension of hydrophobia are not capable of explaining satisfactorily the whole of the phenomena accompanying the spread of the disease. He contended that the data we possess are insufficient for the solution of the question; and he directed particular attention to the very dubious character of the conclusions which might be derived from the records of the mortality from hydrophobia. He argued that under these circumstances the proper course to pursue was to frame a systematic method of observations by which a sufficient number of well-recorded facts could be accumulated to form a sound basis for reasoning. He remarked that a system of observation by which the phenomena of disease could be registered on one plan—a plan which would admit of a comparison of observations taken in different localities—is a desideratum in medical science; and he suggested that such a system of observations as applied to epidemics should emanate from the Epidemiological Society.

ART. 41.—*Case of Spontaneous Hydrophobia.* By M. HENRICH.

(*Henke's Zeitsch.*, 1858; and *Gaz. Hebdom. de Méd. et Chir.*, Oct., 1858.)

CASE.—F. K.—, æt. 30, on the 29th of May, 1851, began to suffer from headache extending over the whole scalp, and symptoms of catarrh. The day following, in the morning, there were rigors and severe shudderings. In the evening of the same day, called in haste to the bedside, M. Henrich found the patient sitting up in bed, the countenance drenched in sweat, pale and expressive of terror, the eyes injected, brilliant, haggard, the voice indistinct and interrupted. The patient, also, complained of pains, and a sense of constriction in the throat and chest, with intense thirst, and without the power to drink. Then the sense of constriction became greatly aggravated, and the patient seemed to be in danger of dying from suffocation. Saliva flowed in considerable quantity from the mouth. Pulse 90, soft. Throat reddish, and covered with tenacious mucus.

An attempt to drink, which was greatly resisted, brought on an attack of suffocation, and the cup was thrown convulsively away. Light, or a current of air, had no effect in bringing on the spasm, and there were no vesicles of Marçhetti under the tongue.

The day following all the symptoms were aggravated (he had been bled and blistered upon the chest in the meantime); the spasms became general, and of a tetanic character, and death followed after two or three attacks of opisthotonos, the mind remaining quite clear up to the end.

The only appearance after death which was at all unnatural was a slight swelling of the base of the tongue.

M. Henrich, after the most careful examination, could find no evidence of any bite by a mad dog, and the only additional fact which remains to be mentioned is, that the man had been very much depressed in spirits, and very much given to intemperance in sexual matters.

ART. 42.—*On the treatment of Chorea by large doses of Tartar Emetic.*

By MM. BOULEY, GILLETTE, and BONFILS.

(*Archiv. Gén. de Méd.*, July, 1858.)

Rasori's plan of treating chorea by large doses of tartar emetic has been recently tried in some of the Parisian hospitals, and the report says with much

success. The plan of M. Gillette is to administer the drug in series of three days, and leave the patient at rest for three days between each series. The object is to obtain *tolerance*, and in order to this the dose is progressively increased, twenty, twenty-five, or thirty centigrammes for the first day, double this quantity for the second day, triple this quantity for the third day. In the next series of three days the former dose is augmented, and so also in the following series, if it is necessary to prolong the treatment. The plan of M. Bouley, on the contrary, is not to produce tolerance, but to develop quickly the physiological effects of the drug—nausea, vomiting, purging, and so on.

M. Bonfils, who was an *interne* at the Hôpital des Enfants, who carried out M. Gillette's plan under that physician, and who makes the subject the theme of his inaugural thesis, says that this plan may be carried out without danger, and that it cures the disorder very rapidly. In ten cases, he tells us, nine were cured in a mean period of sixteen days. Only one case proved refractory, and in this there was reason to suspect some organic cerebral disease. The more grave the disorder, the greater, according to M. Bonfils, would be his confidence in this mode of treatment.

We must know more of this mode of treatment before we can indorse these favorable statements.

ART. 43.—*On Local Narcotic Injections in Neuralgia.*

By MR. CHARLES HUNTER.

(*Medical Times and Gazette*, Oct. 30, 1858.)

In this communication Mr. Hunter brings forward two cases of neuralgia, in which he had tried this mode of treatment. In both cases he finds that considerable relief was obtained—relief which had not been obtained by any previous treatment; that there were certain advantages, as also disadvantages, attending its employment, and that the most serious objection was the production of abscess, because the injection had to be continued some days.

Abscess having resulted in both these cases, Mr. Hunter has given up the localization of the remedy as proposed by Dr. Wood, viz., the injecting the narcotic in the most painful spot affected by neuralgia, or the part which if pressed upon would occasion a paroxysm, and has adopted the employment of narcotic injections into the cellular tissue of various parts of the body.

As the abscess in one of his cases prevented the author from injecting the neuralgic part, this mode of treatment was desisted from for eighteen days, during which time doses equivalent to those which had been injected were given by the stomach.

It is remarkable that no relief followed this mode of administering the morphia; on the contrary, although it was regularly continued, the pains became as sharp and as frequent as they were before the local injection had been tried; and his sleep was again "only in half hours," instead of several hours' duration.

At the end of eighteen days, all general treatment being left off, Mr. Hunter once more commenced narcotic injections of the cellular tissue, not this time of the part affected with tic, but of healthy parts, such as the neck, arm, &c., and taking care that the same spot should never twice be subject to injection.

Since beginning this plan the man has again received remarkable benefit. The paroxysms during the day are shorter, the countenance of the man is far quieter, and he sleeps from seven to eight hours every night, and he now has these advantages without the risk of abscess.

With regard to the other case, the author ceased the localization of the narcotic on October 6th, on account of the abscess; but continued the injection ever since, inserting the point of the aneurismal syringe at various places in the integument of the arms. About three weeks have now elapsed since he began to vary the site for injection, and no sign of abscess at any one point has shown itself, nor indeed of inflammation.

In conclusion he draws attention to these points:—

1. That by the injection of the narcotic into the cellular tissue of a part

distant from that affected with the neuralgia, the relief that follows appears quite as great as when the injection is into the cellular tissue of the neuralgic part.

2. That therefore the idea that the relief results from the localization of the remedy in the painful part is erroneous—equal relief being afforded in either case (injected into the painful part or elsewhere).

3. That with the abolition of localization of the remedy the great objection to narcotic injection is done away with, because no inflammation or abscess follows a single narcotic injection.

4. That the advantages of this mode of administration still remains such as—

(a) The effect of the narcotic being more immediately produced (sometimes almost instantaneously).

(b) The greater certainty of its effect; the knowledge of the exact amount introduced and absorbed; and the avoidance of contamination or alteration which it is liable to administered by the stomach.

(c) The avoidance of constitutional irritation, sickness, headache, &c.

ART. 44.—*On the Relation of Common and Tactile Sensibility in Disease.*

By Dr. SIEVEKING, Physician to St. Mary's Hospital, &c.

(*Medico-Chir. Rev.*, Oct., 1858.)

"The current teaching of physiologists has hitherto been, that the faculty by which we perceive painful sensation, and the faculty which enables us to distinguish the different characters of surfaces that come into contact with our integuments, are identical; and that the channels of common sensation which convey pain, are the same as the channels of tactile sensibility which convey the impression of touch. Schiff and Brown-Séquard have, however, recently essayed to show the error of these views physiologically. The opinion of these distinguished inquirers do not entirely agree with regard to the channels by which the different impressions are conveyed to the sensorium, but both hold that common sensibility and tactile sensibility manifest themselves to the individual by the aid of different sets of fibres.* I have arrived at a similar conclusion by pathological observation, and in the present condition of our knowledge on the subject, it may be useful to adduce any well-authenticated fact that assists in elucidating the subject. The question, then, at present before me is this: are the different impressions made upon the cutaneous surface differently received at the point of contact? are there distinct organs by which the impressions are conveyed to the organ of consciousness? or, are the media by which the impressions are conveyed identical, the difference in the impression depending upon the interpretation given by the central organ? In the latter case, the inference would be, that there are elective affinities between a portion of the brain for impressions attributable to common sensibility, which are not received by another portion of the same organ which has an affinity for the impressions of touch. The first view appears to me much more consonant with what we know of the working of nature, and of the laws that govern organic mechanism.

"The term, 'common sensibility,' I employ to denote the perception of a more or less painful impression made upon the surface; tactile sensibility may

* Schiff's views are briefly these, that the white posterior column of the cord alone conduct tactile sensation, while common sensation passes by the gray matter, neither portion of the cord co-operating with, or acting for, the other in the performance of the function of sensation. (Moleschott's '*Untersuchungen*,' 1858, iv. 1.) On the other hand, Brown-Séquard, whose delicacy in operating it is impossible to see without feeling great confidence in the conclusions which he puts forward in his lectures, maintains, in reference to the present question, that "most of the elements which are employed as conductors of purely tactile impressions seem to pass by the same parts of the spinal cord as those which transmit the impressions which produce pain." Brown-Séquard holds that section of the posterior columns of the cord induces hyperæsthesia in all parts lying posterior to the divided part, a point that is specially denied by Schiff. For the arguments and experiments upon which Brown-Séquard bases his views, we refer the reader to his lectures which are appearing in the '*Lancet*,' and particularly to the fourth. (*Lancet*, July 31, 1858.)

be defined as the power of distinguishing with greater or less facility the inequalities or other characters of surfaces brought into contact with the skin. The simplest way of determining the delicacy of the tactile sensibility of a part is, by employing two points movable on a graduated beam, and impressing them at the same time upon the part to be tested; the smallest distance at which the person experimented upon can distinguish the two points as distinct impressions is a measure of the tactile sensibility of the part. Until the two points are felt in this way, the impressions seem to be produced either by a single point or by a broad surface. There is no relation between the tactile effect and the amount of pain produced, unless it be an inverse ratio; for if actual pain result from the force with which the points are made to impinge, it would rather overpower than promote tactile insensibility.

"The capability of distinguishing weights has been attributed, and apparently with justice, to a distinct property of the muscles, which has been termed the muscular sense. In this way sensation has already been narrowed. It appears to me that pathological facts that have come under my notice justify our proceeding yet further, and separating from one another common sensibility and tactile sensibility.

"We frequently meet with cases in which the patient expresses himself in terms leading the physician to suppose that the two kinds of sensibility are distinct; but as long as the patient's impressions are only subjective, and incapable of actual measurement or delineation which can be made demonstrable to others, they are likely to be set down among the capricious phenomena of nervous derangement, our ignorance of which we cloak with such terms as hysteria, hypochondriasis, spinal irritation, and the like. In the short notice which I gave of the *æsthesiometer*, and its mode of application,* I showed by an instance culled from actual practice, how subjective numbness might coexist with perfect tactile sensibility. As I am disposed to offer a different interpretation for the phenomenon from what I did then, or rather to define the interpretation more precisely, and as it will serve for comparison with the cases I wish now to refer to, I quote it again:—

"E. M.—, *æt.* 52, suffered for six months before the first consultation from numbness and formication of the left hand, with severe nocturnal pains along the tips of the fingers and at their metacarpal ends; the patient rarely had pain in the thumb, and none in the palm of the hand. There was frequent vertigo. To determine the character of the numbness, the *æsthesiometer* was applied, and the patient was found to distinguish one-tenth of an inch equally well at the tips of the middle and third fingers of both hands; the instrument aided in the determination of the diagnosis by showing that the numbness was purely subjective, and not the result of a true paralytic affection."

"I have recently had two cases under my care at St. Mary's Hospital, which each in a different way, prove to my mind that there are in man two distinct functions, and therefore two distinct sets of nerves through which they act, viz.—common sensibility and tactile sensibility; the former being manifested by pain, the latter by the power of distinguishing the character of the surfaces with which a part is in contact. It is manifest that in health the two must apparently be identical, because the painful impression and the impression produced by the character of the impinging body will necessarily be referred to the same spot. In disease, however, this may be otherwise; and if we can satisfactorily show that one of these functions can exist without the other, the legitimate inference is scarcely to be avoided, that they are not identical, and that the media by which they manifest themselves, and through which the individual becomes conscious of them, are also distinct.

"The cases to which I shall refer have many points of interest apart from the question at issue. The space at my disposal will not, however, permit of my doing more than stating the facts to which I desire to draw attention,

* See a description of Dr. Sieveking's *æsthesiometer* in the 'British and Foreign Medico-Chirurgical Review,' January, 1858, p. 280. The *æsthesiometer* may be obtained from Messrs. Elliot, philosophical instrument makers, 30, West Strand.

hoping thereby to induce medical men to watch cases of paralysis that may occur to them, with a view of still further elucidating this not uninteresting question.

"One of the patients, a man above forty, laboring under cerebral disease—probably incipient softening of the hemispheres—not accompanied by acute or violent symptoms, was, at the time of the inquiry, affected with sensory paralysis and partial motor paralysis, the latter more marked in the right than the left lower extremity. The loss of sensibility appeared about equal in all four extremities; but on applying the æsthesiometer, I found that the man was perfectly and readily able to distinguish a little more than one-tenth of an inch at the tips of his fingers, a distance but little greater than that which healthy persons, whose touch has been more cultivated, can distinguish.

"The other patient is a young woman, aged twenty-one, who for about a year has been laboring under progressive paralysis, attacking first the motor powers of the lower extremities, and gradually extending upwards to the arms. Galvanism applied in feeble currents to the different muscles, produces a ready reaction; the palsy cannot, therefore, depend upon a primary degeneration of the muscles, a view that is also negatived by other circumstances. Moreover, reflex action is readily excited in the legs. The question of diagnosis here is one of intense pathological interest, and would in itself deserve to be treated in a special paper. The point of the present communication is contained in the statement that in this girl common sensibility is actually exalted; but that although she feels the prick of the æsthesiometer very acutely, she is unable, if the two points are widely separated, and even made to impinge upon different fingers, or on a finger and a part of a hand, to recognize more than one impression at a time. She has once or twice said that she felt the application of two points as a scratch; but taken in conjunction with other tests to determine her power of touch, it is manifest that, if not absolutely destroyed, it is much impaired, for she is unable to determine whether a surface is rough or smooth. On the legs she cannot distinguish two points, even at a foot apart.* The perception of temperature remains.

"I do not see how we can explain these cases otherwise than by assuming that there are two kinds of cutaneous sensibility—one destined to warn us by pain, the other by the various impressions which we can sum up by no better term than tactile sensibility or touch—for which there are two distinct kinds and sets of conductors to carry them to the cerebrum. In the one case, sensibility to pain is diminished or destroyed, and touch persists; in the other, the sense of touch has been annihilated, and the sense of pain remains."

ART. 45.—*On nervous disorders and nervousness lapsing into Melancholia and Insanity.* By Dr. J. TATUM BANKS, Physician to the Metropolitan Dispensary.

(London, Churchill, 12mo, p. 55, 1858.)

In this essay Dr. Banks insists upon the imperative necessity of treating each particular case upon its own individual merits, and if this be done, he says "it will be found that nervous affections, and, in its early stage, insanity itself, are quite as amenable to medicine and as curable as any other severe disease." Dr. Banks has treated his subject in a popular and pleasing manner, and enforced his views by the narration of several instructive cases.

(B.) CONCERNING THE RESPIRATORY SYSTEM.

ART. 46.—*A new symptom of Croup serving as an indication for Tracheotomy.* By M. BOUCHUT.

(Gaz. Méd. de Paris, Aug. 7, 1858.)

The third period of croup, says M. Bouchut, is accompanied with general anæsthesia of the skin. This anæsthesia augments in proportion as the fibrin-

* In both cases the necessary precautions were taken to prevent any collusion, which in the girl was the less possible because she is all but blind.

ous secretions in the trachea accumulate, and it is produced by the impediment which is thus caused to the free entrance of blood into the lungs. The anæsthesia, indeed, is the sign that the defect of respiration has already proceeded to a serious degree, and this symptom therefore is regarded by M. Bouchut as a reason for having recourse to tracheotomy.

ART. 47.—*On the introduction of a Tube into the Larynx in Croup.*

By M. BOUCHUT.

(*L'Union Méd.*, No. 110, 1858; and *Medical Times and Gazette*, Oct. 30, 1858.)

M. Bouchut has laid before the Académie de Médecine a proposition to treat croup by introducing a silver tube deep into the larynx. Having ascertained the facility with which this may be done upon the dead subject, he put the practice into force in two cases of membranous croup brought into the *Sainte Eugénie* Hospital during the virulent epidemic that has recently prevailed in Paris. He employs three descriptions of instruments: a small curved catheter, open at both ends, as a director for the tube; a straight cylindrical tube, one and a half or two centimeters long, furnished at its upper part with two projecting rims (one placed around its orifice and the other at six millimeters below) and pierced with a hole for the passage of a retaining silk; and a protecting sheath for the index finger or dental dilator. Having ascertained on passing the tube in the subject that it entirely entered the larynx, its upper margin being placed below the superior corda vocalis, the inferior corda fitting into the space between the two rims of the canula, and consequently above the lower rim corresponding to the internal surface of the cricoid cartilage. M. Bouchut employed it in the case of a little girl brought in with diphtheria and croup in the stage of asphyxia. The canula remained *in situ* during thirty-six hours without inducing suffocation or interfering with the functions of the epiglottis, and the symptoms of asphyxia disappeared. The larynx was thus freed from the obstructing false membranes, and the croup must be considered as having been cured. The child, however, died from the diphtheria and from a lobular pneumonia set up the night after the tube was introduced. The second case occurred in a boy $3\frac{1}{2}$ years old, in whom symptoms of asphyxia had commenced. Improvement soon took place, false membranes of a large diameter being discharged through the tube, which remained *in situ* during forty hours, with the exception of one temporary removal, and never becoming displaced during coughing. At the end of this period, the fits of suffocation and asphyxia, which had been kept off for two days by means of the tube, returned; and the Internes, believing death to be imminent from obstruction occurring below the glottis, performed tracheotomy. Some false membranes were thus removed, and the tube was found to have remained in its place unobstructed.

M. Bouchut considers that these two facts establish—1. The facility with which tubage of the glottis may be performed by fixing a canula on the lower cordæ vocales, which does not interfere with the functions of the epiglottis. 2. The tolerance of this tube by the larynx. 3. The possibility of relieving the asphyxia of croup by this means in preference to tracheotomy. 4. The facility with which large pseudo-membranous concretions formed in the trachea and bronchi may pass through this intra-glottal tube. 5. The utility of this new resource for surgeons residing in remote localities, destitute of all assistance.

ART. 48.—*On the employment of Chlorate of Soda as a local application to the trachea after Tracheotomy in Croup.* By M. E. BARTHEZ.

(*Gaz. Méd. de Paris*, Aug. 14, 1858.)

M. Barthez employs a solution of from three to four grammes of chlorate of soda in thirty grammes of distilled water. He injects a few drops of this fluid through the canula into the trachea, and he does this to promote the solution of the fibrinous exudation. He thinks, indeed, that the chlorate of soda has a

very marked power in favoring this solution, but the evidence adduced on this subject cannot be regarded as conclusive.

ART. 49.—*On the fluctuations in attacks of Pneumonia between 1836 and 1856.*
By Dr. ZIEMSEN, of Berlin.

(*Edin. Med. Journal*, Oct., 1858.)

It is no novel observation that pneumonia, at times a comparatively rare disease, is at others a strikingly frequent one, without, however, ever accumulating to any considerable epidemic. The details of this fluctuation have not yet, however, been definitively determined for any one special place, and far less have any comparative observations been made on the simultaneous oscillations in several places. In fact, the only material hitherto existing as applicable for such a purpose (the hospital lists), has been alike insufficient in point of numbers, and unfit from its composition; inasmuch as, to obtain a comparable quotient, an inconstant number of total sick must be employed, from which it follows that, by the prevalence of any other local epidemic, or by mere chance in the admissions, the true relative frequency of pneumonia may be easily obscured; while, on the other hand, the hospital sick being obtained from variable fractions of the respective populations, do not represent with certainty its occurrence in the entire population. The course of any disease, in any given place, can only be made obvious by comparing the total number of cases with the total of the population existing at that time; this is only attainable by making use of the national mortality tables which have of late years been issued by various governments. Dr. Ziemssen, in making use of these, has collected a total of 376,800 fatal cases of pneumonia, occurring in 15 European towns, 2 European countries, 1 North American, and 1 North African town, during the period of 21 years, 1836 to 1856 inclusive, forming a total period of observation of 178 years; for the sake of comparison, a series of 7000 pneumonic attacks (not deaths) has also been extracted from the same period. These valuable tables (which we omit) throw a certain amount of light on the following five questions:—

- I. The amount of fluctuation in mortality from pneumonia.
- II. The relation of the amount of fluctuation in the mortality from pneumonia to that of other diseases.
- III. The agreement and difference in the annual mortality from pneumonia during the 21 years, 1836 to 1856, in the different places.
- IV. The type of oscillation in the mortality from pneumonia.
- V. The parallelism of the curve of fluctuation of pneumonia with that of the curves of other diseases in the same period.

1. The mortality from pneumonia undergoes constant and considerable fluctuations, which vary, nevertheless, in each different place. To reduce these to a comparable mean, two computable conditions require to be considered.

(a) The amount of the *extreme fluctuation*, i. e., the numerical difference between the highest and the lowest relative yearly loss of a population from pneumonia. To obtain this, the minimum mortality (Tab. I) is subtracted from the maximum, and the resulting cipher of extreme fluctuation is reduced to a percentage relative to the mean annual material; this percentage is then the comparable measure of the extreme fluctuation. Rejecting places where the observations have been carried on too short a time, and such as have too trifling an amount of population (Leith, Belfast, Limerick, Breslau), the others rise in the amount of their extreme fluctuation in the following order:—

TABLE I.

Duration of the observation in y'rs.	Place of observation.	Mean annual material.	Maximum.	Minimum.	Extreme fluctuation.	Measure of the extreme fluctuation.
11	All England	1.25	1.44	1.11	0.33	26.4 pr. ct.
5	Algiers	2.33	2.61	1.62	0.99	42.5 "
9	Hamburgh	2.17	2.56	1.60	0.96	44.2 "
9	Zürich	2.05	2.66	1.69	0.97	47.3 "
14	Paris	2.56	3.26	2.05	1.21	47.3 "
10	Boston	1.54	2.05	1.24	0.81	52.6 "
21	Berlin	1.14	1.46	0.86	0.60	52.7 "
4	Gent	1.21	1.68	1.02	0.66	54.5 "
3	Edinburgh	1.42	1.75	0.89	0.86	60.6 "
17	London	1.69	2.12	0.96	1.16	68.6 "
10	Halle	2.29	3.41	1.47	1.94	84.7 "
9	Dublin	0.81	1.28	0.52	0.76	93.8 "
9	All Ireland	0.27	0.41	0.14	0.27	100.0 "
15	Copenhagen	1.73	2.56	0.71	1.85	106.9 "
9	Cork	0.46	0.78	6.28	0.50	108.7 "
155	Mean of totals	1.53	2.00	1.08	0.92	60.1 pr. ct.

In the towns and countries of the Northern Hemisphere, the variation in the annual mortality from pneumonia may thus exceed, on the average, the mean annual mortality from that cause by 3-5ths.

(b) Of still more importance is the determination of the *mean fluctuation*, i. e., the mean difference between two following annual periods. It is obtained by adding together the successive differences (both increase and decrease) between each annual period of the given place of observation, dividing this sum by the number of these differences, and reducing the result to a percentage relative to the mean annual material. Excluding places where the duration of observations has been less than nine years (Algiers, Gent, Edinburgh, Leith, Breslau), the others follow in the following order:—

TABLE II.

	Mean fluctuation.	Measure of the mean fluctuation.	For comparison (measure of the extreme fluctuation).
All England	0.08	7.0 pr. ct.	26.4
London	0.22	12.8 "	68.6
Zürich	0.26	13.0 "	47.3
All Ireland	0.04	14.8 "	100.0
Paris	0.38	15.2 "	47.3
Copenhagen	0.27	15.8 "	106.9
Hamburgh	0.42	19.5 "	44.2
Dublin	0.17	20.6 "	93.8
Berlin	0.23	20.6 "	52.7
Cork	0.10	21.8 "	108.7
Boston	0.37	24.2 "	52.6
Limerick	0.17	28.3 "	163.3
Halle	0.69	30.3 "	84.7
Mean of totals	0.26	18.8 pr. ct.	

If we suppose, then, that the mean actual mortality from pneumonia in the temperate zone of the Northern Hemisphere amounts to ≈ 100 , each year may differ on the average by 19 from its predecessor or successor, *i. e.*, the average variation from one year to another amounts to nearly 1.5th of the mean annual amount; 19 per cent., therefore, of the annual mortality from pneumonia in Europe is dependent on change of season.

Different places vary very much in this respect, the causes of pneumonia appearing to act twice as uniformly in England as in Ireland, while in Halle the dependence of its mortality on season seems to be twice as great as in Paris, &c. The source of the increase in the mean fluctuation cannot with certainty be determined, and all the less so that the periods of observation are dissimilar, and do not always comprise the same seasons; still, the following provisional conclusions may be drawn:—

I. The amount of the mean fluctuation in the mortality from pneumonia is in inverse relation to the circumference (density?) of the population. Thus, the three countries, England, Ireland, and Canton Zürich, have a mean fluctuation of 11.6 per cent., the ten towns one of 20.9 per cent. The six larger European towns (London, Paris, Hamburg, Copenhagen, Dublin) have a mean fluctuation of 17.4 per cent.; the four smaller towns (Halle, Cork, Limerick, Boston), one of 26.1 per cent. The countries have also always much less fluctuation than their contained towns—Ireland 14.8 to Dublin 20.6; England with 7.0 to London with 12.8. General climatic relations, particularly the difference between oceanic and continental climates, seem to have no influence on the amount of the mean fluctuation, as it is relatively the same for Zürich and London, Berlin and Dublin. The amount of the extreme fluctuation has no direct relation to the amount of the mean fluctuation. Places like Copenhagen may have little variation from year to year, and yet have extreme maxima and minima; while others, like Berlin, may vary much from year to year, and yet have no remarkable extreme. The difference between the maximum and minimum mortality cannot, therefore, ever be an efficient measure of the amount of uniformity with which the causes of pneumonia act in any given place. There is nothing to give determinate support to any conjectures respecting the cause of these extreme fluctuations: Halle is relatively the same as Dublin; while Hamburg and Copenhagen, and England and Ireland, differ widely, though lying near one another and having similar climatic conditions.

II. *The relation of the amount of fluctuation in mortality from pneumonia to that of other diseases* which are frequent sources of mortality, Dr. Ziemssen has deduced from the mortality tables of London, obtaining the measure of the fluctuation in the manner already mentioned, after reducing the figures directly obtained to those having reference to 100,000 living—the period of observation comprises fifteen years, 1840–54:—

TABLE III.

	Mean annual mortality in 100,000 living.	Mean fluctuation.	Extreme fluctuation.	Measure of mean fluctuation.	Measure of extreme fluctuation.
Phthisis	3.23	0.14	1.39	4.5 pr. ct.	40.1 pr. ct.
Apoplexy	0.52	0.04	0.18	6.7 "	34.5 "
Pneumonia	1.70	0.23	1.16	13.7 "	68.2 "
Bronchitis	1.15	0.25	1.81	22.0 "	158.0 "
Typhus	0.95	0.22	0.98	22.9 "	103.6 "
Diarrhoea	0.75	0.22	1.28	29.4 "	170.8 "
Hooping-cough . .	9.86	0.27	0.64	31.0 "	74.1 "
Measles	0.57	0.24	0.87	41.7 "	151.8 "

From these figures we see that though pneumonia is far from reaching the amount of fluctuation of such epidemic diseases as measles or hooping-cough, yet its fluctuations are very much greater than those of such diseases as

phthisis and apoplexy, which arise from constitutional and general circumstances affecting vitality; pneumonia stands next to typhus, and is but little behind it in irregularity of occurrence.

III. By comparing the relative mortality from pneumonia in the different places, Dr. Ziemssen has deduced the fact that pneumonia, in spite of many irregularities and apparent exceptions, passes through simultaneous waves of increase and decrease, in northern as well as in southern countries, in insular as well as in continental climates, in North America, Europe, North Africa, and the East Indies, and this so unmistakably, that we are led to consider these waves as dependent on general causes which move simultaneously over the entire northern hemisphere. This Dr. Ziemssen fully illustrates, by entering minutely into the course of pneumonia in each of the twenty-one years, 1836-1856.

Further consideration of the *share taken in these oscillations by the different sexes and ages*, brings to light (a) That the mortality among the female sex varies with the season, and that in so strikingly regular a manner, that, when transmuted into curves, the curve of mortality among females, from pneumonia, is almost perfectly concentric with the curve of general mortality, from the same cause, showing that those influences which favor the origin of pneumonia act with peculiar intensity on the female sex.

(b) Inasmuch as but few mortality tables class the fatal cases of pneumonia according to their ages, and the comparative use of these few facts is rendered more difficult by different classifications of the ages being made, not only in different places, but in the same place in different seasons, so only an approximation on this head can be arrived at. From this it seems (1.) that the mortality from pneumonia in childhood is more liable to fluctuation than that of adults, in the proportion of 28 : 20 or 7 : 5. (2) The fluctuation in the mortality of both classes (children and adults) is not always parallel, i. e., pneumonia may rage in the one and not in the other; and this sometimes affords an explanation of a seeming irregularity in the course of pneumonia; for instance, in 1841, when the mortality from pneumonia was generally at its ebb, the curve of Hamburg, as a sole exception, culminates. This was the effect of an entirely local epidemic of pneumonia amongst the children, of whom 22 per cent. above the annual average died, while, in unison with every other place, the mortality amongst the adults from the same cause was 17 per cent. below the average. (3.) Fluctuations in the pneumonia of adults in the various places are tolerably parallel; on the contrary, infantile (0-10) pneumonia varies widely even in places socially and climatically related, such as Hamburg and Copenhagen; and this epidemic occurrence of pneumonia within territorial limits, recalls similar movements in acknowledged contagious diseases, as measles and scarlatina, and can scarcely be explained by any of the known modifications of atmospheric influence.

IV. In regard to the *type of the pneumonia movement*, Dr. Ziemssen considers himself justified in regarding it as irregular and not periodic; at the same time it is remarkably characteristic of pneumonia, one culmination point occurring in most places every third year. This peculiar oscillation in pneumonia gives the impression, that possibly each place may possess a determinate mean mortality from this cause, the ever varying annual mortality always, in shorter or longer recurring periods, bringing out this same endemic mean: for instance, in Berlin, there died of pneumonia, in twenty-one years, to 100,000 living—

In the quinquennium 1836-40 . 1.13	} In the 1st decennium . 1.14
“ “ 1841-45 . 1.15	
“ “ 1846-50 . 1.13	
“ sexennium 1851-56 . 1.16	} In the 2d decennium . 1.14

But this impression is, of course, liable to be overset by many unforeseen possibilities.

V. A comparison of the mortality of other diseases with that of pneumonia leads to the conclusion that the curve of pneumonia is by no means concentric with that of other inflammatory diseases; on the contrary, that exquisite pneu-

monic years are characterized by a rarity of other inflammations, which, moreover, fluctuate but slightly. On the other hand, many pneumonic years are characterized by an unusual frequency in other diseases of the respiratory organs; and also many years in which pneumonia culminates in other places, but not in London,* are also those distinguished by increased affections of the respiratory organs, though at other times, as in 1843, this is not the case; in 1843, however, typhoid diseases were remarkably frequent. The curves of typhus and pneumonia are, moreover, remarkably parallel; and not only so, but years marked on the Continent by increase of pneumonia, and not so in London, are those marked by an increase of typhus. This parallelism is the more remarkable, as hitherto these two diseases have been regarded as representatives of opposite and, to some extent, antagonistic morbid constitutions. From these facts, we gather that pneumonia will then be most frequent when influences predisposing to diseases of the lungs combine with others which dispose to typhus, of which a remarkable example is afforded by the prevalence of an almost double the previous mortality from pneumonia in Denmark and Ireland during the famine years 1845-59, when typhus, dysentery, intermittents, and scurvy raged.

In further investigating the oscillations in the mortality of pneumonia, month by month, Dr. Ziemssen comes to the conclusion, that once or oftener in each year, a period of unusual excess alternates with one of deficit; and in the culminating years themselves, it is extremely rare that every or almost every month is above the average, and much more usually single months influence by their decided excess or deficit the entire amount of the annual mortality. These minor epidemics are wonderfully simultaneous in the various places, seem to be almost as frequent in summer and autumn as in winter and spring, but attain in the two latter quarters about thrice the extent they do in the two former ones.

ART. 50.—On the Bleeding and Non-bleeding plans of Treatment in Pneumonia.
By Dr. —

(*Medico-Chir. Review*, July, 1858.)

The following numerical particulars are appended to a valuable review on the bloodletting controversy.

The non-bleeding plan, the reviewer considers, has a demonstrable advantage over that of indiscriminate and repeated bleeding; but at the same time he maintains that the discriminate practice of moderate early bleeding, general or local, is pressed upon us both by experience and science, in cases of more or less sthenic pneumonia. He maintains also that bloodletting is admissible in asthenic pneumonia, whether as regards the character of the disease or the constitution of the patient.

* In this comparison the mortality tables of London are alone made use of. Under the head "Inflammations" are comprised cephalitis, pericarditis, laryngitis, pleuritis, hepatitis, peritonitis, gastritis, and enteritis; under that of diseases of the respiratory organs, pneumonia, tuberculosis, hooping-cough, and croup.

Bleeding Plan.				Non-Bleeding Plan.				
	No. of cases.	No of deaths.	One death in		No. of cases.	No. of deaths.	One death in	
Repeated or large bleedings.	Bouilland (Pelletan) . . .	71	9	7.9	Trousseau [T. E.] . . .	62	2	26
	Ditto (own report) . . .	102	12	8.5	Grisolle [T. E.] . . .	44	6	7.3
	Lacaze . . .	42	1	42	Thielmann [T. E.] . . .	110	12	9.2
	Briquet . . .	129	17	7	Schmidt [T. E.] . . .	87	4	9.1
	Chomel (Louis) . . .	78	28	2.8	Ditto [O.] . . .	13	6	2.1
	Ditto (Grisolle) . . .	50	14	3.6	Ditto [T. E., O.] . . .	46	9	5.1
	Ditto (ditto) [T. E.] . . .	24	13	1.8	Dietl [T. E.] . . .	106	22	4.8
	Louis (20 cases) [T. E.] . . .	29	4	7.2	Skoda (Balfour), 1146 . . .	45	3	15
	Grisolle . . .	232	37	6.3	Ditto (Mitchell), 1852 . . .	54	14	3.9
	Plorry . . .	30	2	15	Oppolzer (ditto) . . .	32	5	6.4
	Rasori [T. E.] . . .	747	164	4.5	Vienna Hospital (ditto) . . .	240	40	6
	Ditto (Wagner) [T. E.] . . .	13	7	1.9	Sigmund, Pr. & Ho. (ditto) . . .	743	104	7
	Acerbi [T. E.] . . .	142	16	8.9	Vienna Hospital (ditto)§ . . .	5909	1439	4.1
	Skoda [T. E.] females . . .	64	1	64	Ditto, 1856 . . .	658	187	3.5
	Do. [do.] males and fem. . .	..	..	8	Wittich [M.] . . .	23	0	0
Few bleedings.	Laennec [T. E.] . . .	62	6	10.3	Bell, Dr. [M.] . . .	35	4	8.7
	Do. [T. E.] Leconteulx . . .	32	12	2.7	Gandini [M., O.] . . .	25	0	0
	Grisolle [T. E.] . . .	110	28	4	Cohn [T. E., O.] . . .	67	24	2.4
	Ruef [T. E.] . . .	94	5	18.8	De Bordes [O.] . . .	77	17	4.5
	Bang [T. E.] . . .	54	2	27	Burkart [O., L.] . . .	60	1	60
	Gerhard (children 6 to 16) . . .	26	1	26	Baumgärtner [Ch.] . . .	30	3	10
	Becquerel (children) . . .	12	8	1.5	Wucherer [Ch.] . . .	90	1	90
	Ditto, ditto (secondary) . . .	16	15 or 16	..	Helbing [Ch.] . . .	62	5	12
	Dietl . . .	85	17	5	Varrentrapp [Ch.]§ . . .	23	1	23
	Wunderlich . . .	47	3	15.6	Stoham [Ch.] . . .	30	0	0
	Ditto* . . .	114	9	12.7	Frohmüller [Ch.] . . .	12	0	0
	Dr. Bell [M.] . . .	36	0	0	Hutava [Ch.] . . .	12	0	0
	Wossidlo . . .	112	4	28	Theile [Ch.] . . .	6	0	0
	Burkardt . . .	60	1	60	Salawa [Ch.]§ . . .	15	0	0
	De Bordes† . . .	13	2	6.5	Dietl (diet only), 1848 . . .	159	14	13.5
	Müller† . . .	10	0	0	Ditto (ditto) 1852 . . .	750	69	10.9
	Forget . . .	32	7	4.6	Wieden Hos., Vienna, 1855 . . .	..	..	4.8
	Schmidt† . . .	6	1	6	Bennett, Dr. . . .	65	3	21.7
	Morehead, Dr. (local) . . .	57	11	5.2	Wunderlich . . .	76	13	5.8
	Ditto, total (bled or not) . . .	103	32	3.2	Kissel [I., Co.] . . .	112	5	22
T. B. Tartar emetic.				O. Opium.				
I. Iron.				Ch. Chloroform.				
M. Mercury.				L. Lead.				
Co. Copper.								

ART. 51.—On the influence of Solidification of the Lung upon vocal vibration.

By Dr. GEORGE JOHNSON, Physician to King's College Hospital, &c.

(Dr. Beale's Archiv. of Med., No. II, 1858.)

"Until within the last few months," says Dr. Johnson, "I have been in the habit of considering that, as a rule, the vocal vibration or fremitus over solid lung is greater than over the corresponding part of the healthy lung, and that the exceptions to this rule are rare; further, that in this sign we have a valuable means of distinguishing between solid lung and liquid in the pleura, the vocal vibration in the latter condition being invariably diminished.

"I believe still, that in most cases there is increased vocal vibration over solid lung, but I think that the exceptions to this rule are more numerous than is commonly supposed; and I have been led to this opinion by finding, that out of twelve cases of pneumonia which have occurred in my hospital practice during the last eighteen months, in three there has been decided *diminution* of the vocal vibration over the hepatized lung; while in two others the vibration was neither increased nor diminished, as compared with the corresponding part of the opposite side. The following is a brief outline of the most remarkable of these cases.—

"CASE I.—Edward C—, æt. 17, was admitted on the 12th December, having been four days ill. He had all the general symptoms of pneumonia. On the day of admission, the physical signs were these: dulness on percussion over the whole lower lobe of the left lung, from the spine of the scapula downwards; over the same space distinct bronchial respiration and voice, vocal vibration

* Combined general and local bleeding, and spontaneous hemorrhage.

† Part bled generally, part locally.

‡ Four bled before admission.

§ Very few bled.

less than on the sound side. Over the front of the left side—i. e., the upper lobe of the left lung—percussion natural, respiration vesicular, clear and loud, vocal vibration *much stronger* than over the corresponding part of the right side.

"On the 17th, the physical signs over the lower lobe were the same as before, but the upper lobe had become solid as shown by the following signs: great dulness on percussion over the whole left front; bronchial respiration and voice, and now *diminished* vocal vibration. The heart continued to beat in its natural position. The movements of the left side of the chest were much less than those of the right. The physical signs remained unchanged until the time of the patient's death, which occurred on the 24th December.

"On post-mortem examination, the whole left lung was found solid, and of a mottled grayish color. The pleura was covered by recent lymph, which formed a very thin layer, except in some of the intercostal spaces, where it was about one eighth of an inch thick; there was no liquid in the cavity of the pleura.

"What was the cause of the diminished vocal vibration over this solid lung? I have no explanation to offer, but I would remark, that it can scarcely be supposed that obstruction of the bronchial tubes was the cause of the phenomenon, inasmuch as bronchial respiration was heard over the whole left side, with a distinctness rarely observed when the entire lung is solidified by inflammation.

"I wish to direct attention particularly to one phenomenon in this case—namely, that during the first few days, while the lower lobe alone was solid and the vocal vibration over it was diminished, there was a great increase of vocal vibration over the *upper* lobe of the same side, which as yet was free from disease; but when this upper lobe became solid, the vocal vibration over its surface was as much diminished as it had before been and continued to be over the lower lobe. In two others of the twelve cases of pneumonia to which I have referred, it was also observed that hepatization of the lower lobe of one lung had the effect of greatly increasing the vocal vibration over the upper lobe of the same side, the sounds of percussion and respiration over the upper lobe remaining quite normal. In one of these cases, the vibration over the solidified lower lobe was much diminished; in the other, it was neither increased nor diminished. In both cases, the disease was on the right side; but the increase of vocal vibration over the right upper lobe appeared to be greater than the natural excess of vibration on that side.

"I have lately observed similar phenomena in a case of acute tubercular disease of the lung, which is further remarkable on account of the tubercular deposit being more abundant in the lower than in the upper lobe of the lung. The following is a summary of the case:—

"CASE 2.—Charles Wood, æt. 42, a carpenter, had been ill six weeks before his admission, suffering from cough, with scanty expectoration, fever, loss of flesh and strength; he had continued his work until three weeks ago; admitted November 12th. He was much emaciated, and had a sallow, unhealthy appearance, skin hot, tongue red and dry, P. 116, R. 32. Decided dulness on percussion over the lower lobe of the left lung; slight dulness over the left upper lobe, as compared with the opposite side. Bronchial breathing and voice near the angle of the scapula on the left side; *diminished* vocal vibration over the same space; over the left upper lobe in front, large crepitation, with *increased* vocal vibration.

"On the 17th, the respiration at the angle of the scapula was doubtfully cavernous, and gurgling was heard in the same situation. He had expectorated only a few pellets of gray mucus.

"The physical signs remained the same until his death, which occurred on the 23d.

"The lower lobe of the left lung was solidified by a tubercular deposit, which at the base had completely infiltrated the pulmonary tissue. At the upper margin of this lobe was a cavity the size of a walnut; some smaller cavities near this; a considerable tubercular deposit in the upper and back part of the left upper lobe; this was breaking down into small cavities, the largest the size of a marble. The lower and anterior part of this lobe was

gorged, but crepitant. There was a scanty deposit of crude tubercle in the apex of the right lung.

"With respect to the increased vocal vibration over the upper lobe of the left lung, it may perhaps be objected that this was the result of the tubercular disease and engorgement of this lobe. Still, the fact remains, that over the lower lobe, which was much more solid than the upper, the vibration was decidedly less than over the corresponding part of the opposite side.

"Another case in which we have lately found complete absence of vocal vibration over solid lung was one of primary cancer of the lung.

"CASE 3.—John Robinson, æt. 41, a painter, admitted June 7th, 1856. Five weeks before admission, after exposure to cold and bad living, he began to suffer from pain in the limbs and in the right side of the chest. The pain in the chest continued, and he rapidly lost flesh.

"On admission, he had a pale, unhealthy aspect; his chief complaint was of pain on the right side of the chest, and there was a hard swelling about the size of a walnut over the eighth and ninth ribs, just in front of their angles. This swelling was extremely tender. Dulness on percussion over the whole lower lobe of the right lung; at the upper part of this lobe the dulness was less complete than over the lower two-thirds. Elsewhere there was the normal resonance. Over the lower two-thirds of the inferior right lobe there was complete absence of respiratory and voice sounds, and of vocal vibration. At the upper part of this lobe—that is, just below the spine of the scapula—there was indistinct respiration, with some crepitation, and the voice had a bronchophonic character.

"The patient continued to lose flesh and strength; he coughed and expectorated puriform mucus, tinged with florid blood, which often gave it the color of red-currant jelly. The skin was always cool; the pulse usually 104, and the respiration 24.

"The physical signs over the lower lobe of the right lung remained essentially the same; but the dulness towards the upper part of the lobe rather increased, and the right side became decidedly flattened. The hard tumor before mentioned grew to be as large as an egg.

"On the 24th July, the patient being then much emaciated, it was first noted that, when he was in the recumbent position, there was a distinct wave-like pulsation in the right jugular vein, and in one of the thyroid veins on the right side. This venous pulse ceased when he sat up.

"On the 29th July, it was further observed that there was dulness, on percussion, and tubular breathing below the sternal end of the right clavicle.

"The expectoration had become more copious, and had a dirty, purulent character. It was frequently examined with the microscope, and was found to contain pus, granular fat-cells, and epithelium, but no fibrous lung-tissue, nor any products which appeared to be of a cancerous nature. Yet the history of the case, the physical signs, and the hard tumour on the right side, left little room for doubt as to the disease being cancer; and that opinion was expressed in a clinical lecture while the patient was living.

"He gradually sank, and died on the 4th August.

"The whole lower lobe of the right lung, except at its upper margin, was entirely occupied by a cancerous growth, which was universally adherent to the wall of the chest, projecting between the seventh, eighth, ninth, and tenth right ribs, to form the tumor before mentioned, and forming another projection as large as an orange, which had made a depression in the upper surface of the liver. The centre of the cancerous mass was softened, and contained about twenty ounces of creamy fluid. This had no means of escape until the tumor was broken through in tearing it from its adhesions to the walls of the chest.

"A mass of enlarged lymphatic glands formed a tumor, which lay behind the right sterno-clavicular joint, touched the trachea, and passed down between the right brachio-cephalic vein and the ascending aorta, its position between these two vessels being such that it must evidently have communicated a pulsation from the artery to the vein. This state of parts had been anticipated from the phenomena observed on the 24th and 29th August.

"The only remaining point to be noticed is, that in the apex of each lung there were some indurated remains of an old tubercular deposit. In this case, the complete absence of respiratory and vocal sounds, as well as of vocal vibration, is accounted for by the entire obliteration of the pulmonary tissue through nearly the whole lower lobe of the right lung.

"The cases to which I have referred will suffice to show that the vocal vibration over solid lung is by no means uncommonly diminished, and it is evident that the diagnosis between solid lung and liquid in the pleura is often but little aided by a comparison of the vocal vibration on the two sides of the chest.

"It has occurred to me on more than one occasion to find that pneumonia of the lower lobe of the lung has been mistaken for pleurisy with liquid effusion—a mistake which is the more likely to occur when there is diminished vocal fremitus over the solidified lung. There is one help towards a correct diagnosis in cases of this kind, which has, I think, been too little regarded by those who have written on the subject. In percussing the chest, we should bear in mind the form and limits of the lobes of the lung, and ascertain whether the extent of dulness corresponds with the outline of one or other of these lobes. If this be found to be the case, the probability is, that the dulness depends on solidified lung, and not on liquid in the pleura. Take, for instance, a case in which the lower lobe of the left lung is hepatized. It will be found, that while percussion over the back of the chest elicits a dull sound from the spine of the scapula downwards, in front there is the natural resonance, and the lateral region is partly dull and partly resonant; the boundary line between the dull and the resonant part extending obliquely downwards and forwards from just below the spine of the scapula, in the direction of the fissure between the two lobes of the lung. It can rarely, if ever, happen that liquid in the pleura is so circumscribed as that, while it extends as high as the spine of the scapula at the back, it will leave the front of the chest normally resonant when the patient is in the erect posture. When the upper lobe alone of the left lung is solidified, the line of demarcation is the same as in the other case, but the dull and the resonant parts are reversed. The middle lobe of the right lung, extending in front from the mamma downwards, may be inflamed and solidified alone, as happened in one of the twelve cases before mentioned, or it may be effected at the same time with either the upper or the lower lobe.

"My object in the present communication has been to direct attention to three practical points relating to the diagnosis of pulmonary disease. 1st. That the vocal vibration is not unfrequently diminished over solid lung. 2d. That when the *lower* lobe of the lung is solidified, the vocal vibration over the *upper* lobe of the same side is sometimes remarkably increased. 3d. That in percussing the chest, when the question of diagnosis is between solid lung and liquid in the pleura, it is important to remember the exact form and position of the several lobes of the lung."

ART. 52.—*Diagnostical and prognostical value of Hæmoptysis.*

By Dr. TROUSSEAU, Physician to the Hôtel Dieu, Paris.

(*L'Union Médicale*, Nos. 110 and 113, 1857.)

Professor Trousseau states that, on finding an individual spitting blood, the first idea that presents itself is the existence of pulmonary tubercle; but if we note all the cases that present themselves, not in private, but in hospital practice, we shall find the hæmoptysis as often dependent upon other causes as upon tubercular disease. This statement, paradoxical as it may seem, is quite true when confined to hospital patients.

A form of hæmoptysis that is rarely met with in hospitals, is due to *hemorrhagic deviations*. We meet with women who, without suffering from any notable disturbance of menstruation, but who are the subjects of nervous symptoms, spit blood frequently in considerable quantity. Neither the symptoms nor attentive exploration of the chest, indicate any affection of the heart or lungs; and when the period of menopause arrives, the hæmoptysis becomes arrested, and does not return. Other women spit blood during pregnancy or

lactation, and cease doing so when these conditions are terminated. These nervous women are also sometimes the subject of menorrhagia, seeming to be under the influence of a hemorrhagic diathesis; and when the critical discharge does not take place by the uterine mucous membrane, it does so by the bronchial membrane. Although these hæmoptyses are not of the importance that might be supposed, and may be reproduced at longer or shorter intervals during several years, it must be borne in mind that this frequent repetition may induce a congested state of the respiratory apparatus, during which even a slight accessory cause may give rise to a more or less dangerous phlegmasia. Independently of abnormal circumstances, we may meet with hæmoptysis occurring, so to speak, as a physiological accident, supplying the place of a natural or accidental discharge of blood, which, from some cause or other, does not take place by the ordinary channel. Thus, in women with obstructed menstruation, it is one of the most frequent forms of *hemorrhage supplementary to menstruation*. It will be readily understood that when with this peculiar disposition of the economy there is combined another dependent upon a local predisposing condition of the pulmonary apparatus, these hæmoptyses are still more readily produced. Under such circumstances the prognosis of hæmoptysis is far more serious than when it arises from hemorrhagic deviations unconnected with local occasional causes. Here, in fact, the accidents become complicated with the local lesion which has led to these manifestations, just as this itself is necessarily complicated by the fact of the fluxionary hemorrhagic movement, which, at each return, accelerates the evolution of such lesion.

As already observed, these varieties of pulmonary hemorrhage are rare in hospital practice. The form of the affection, however, there most commonly met with, is not hæmoptysis dependent upon phthisis, but hæmoptysis dependent upon disease of the heart. It is not meant by this to declare in an absolute manner, that tubercular hæmoptysis is of rarer occurrence than hæmoptysis dependent upon disease of the heart, but only to state that in phthisis, hæmoptysis being in general a transitory condition, occurring early in the affection, the patients do not come to the hospital, while hæmoptysis dependent upon heart-disease occurs principally when the disease is much advanced, and, consequently, at the period when patients are obliged to resort to the hospitals. Proceeding to consider some of the points of diagnosis between these two forms, we find that in youth, adolescence, and the early period of mature life, from the sixteenth to the fortieth year, hæmoptysis most generally is dependent upon pulmonary tubercle, and that whether it is met with in hospital or private practice; but after the fortieth year, and still more after the fiftieth, it is no longer, generally at least, a sign of phthisis, but of disease of the heart. There are exceptions to this rule, but they do not invalidate its general truth. In phthisis bloody expectoration may either precede any other manifestation of the disease, of which it may then be considered the earliest symptom, or it may appear in the course of the affection. Laennec indicated its slight quantity as a characteristic, and regarded very abundant hæmoptysis as almost always due to pulmonary apoplexy. But he had little opportunity of observation in private practice. It is true that, in general, hæmoptysis is not abundant, but still there are cases in which it is overwhelmingly so, causing death by the sole fact of the loss of an enormous quantity of blood. Hæmoptysis, consequent on disease of the heart, is, notwithstanding, still seldomer overwhelming (*foudroyante*) than bronchial hemorrhage. It may recur fifteen, twenty, forty, or fifty days in succession without at once proving fatal. Of course, when dependent upon the rupture of an aneurismatic vessel into the bronchi, it may prove still more rapidly fatal than hæmoptysis supervening on phthisis. Besides the age of the patient and the progress of the symptoms as elements in the differential diagnosis, there is an important point in regard to the seat of the hemorrhage, viz., that while in phthisis it takes place generally at the bronchial surface, in disease of the heart it is most often parenchymatous, first occurring in the pulmonary vesicles.

As to the question of the characteristics of bronchial and pulmonary sanguineous expectoration, it is said that bronchial hemorrhage is observed under the form of spumous, semi-fluid sputa, resembling blood beat up with air, and having a bright redness, deemed characteristic. The quantity dis-

charged is said to be sometimes very slight, and sometimes very abundant, not being mingled with the debris of alimentary substances or mucosities. But this is far from being always the case, as the sputa may be as viscous as those seen in the first stage of pneumonia, or in pulmonary apoplexy, an appearance, probably, due to the slight accompanying inflammatory action, or to the accumulation and detention of the blood in the lungs. So, too, we may find the discharges mixed with alimentary substances when the hæmoptysis is undoubtedly connected with phthisis. Stethoscopic signs are often at fault, or indicate as much, or even more, the pulmonary lesion upon which the hæmoptysis depends. Generally at the autopsy of persons who have been the subjects of bronchial hemorrhage, we only find, besides the lesions proper to phthisis, redness of the pulmonary mucous membrane, which, indeed, may be due to imbibition. If cavities exist, they may contain a certain amount of coagulated blood, and that usually when vascular ruptures take place within these: otherwise we only find a little blood accumulated in the bronchi.

With respect to pulmonary hemorrhage, we may advert to the erroneous term, "pulmonary apoplexy," which has been bestowed upon it, giving, as it does, no idea of the nature of the affection. It occurs in general during the course of an affection of the heart; and at the autopsy kernels of engorgement are found of as deep a color as the spleen, and as hard as those of pneumonia in its second stage. The tissue of the lung is friable, and presents the granular aspect of hepatized tissue, except that while in the latter the vessels and lobular intersections are visible, the hæmoptycal engorgement presents a uniform blackish, or very deep brown color. This lesion, which would be better termed sanguineous infiltration, bears no analogy to cerebral apoplexy, the term apoplexy always implying the idea of suddenness and active fluxion, a condition rather belonging to bronchial than pulmonary hemorrhage, which is ordinarily, to a certain extent, passive. There are, indeed, cases of true pulmonary apoplexy giving rise to sudden death, and characterized by the effusion of more or less blood amidst the lacerated lung. The term apoplexy would be much better applied to cases of active congestion of the lung, a not very rare disease, but which is rarely accompanied by hæmoptysis, properly so called. Gendrin proposes to substitute for the term pulmonary apoplexy, *pneumo-hemorrhage*, indicating without ambiguity an extravasation of blood into the tissue of the lungs. As to the distinctive signs in these cases of pulmonary sanguineous infiltration, the expectoration is generally viscous, sometimes red, and sometimes black, and even deep black. But, as in bronchial hemorrhage, the blood discharged is also sometimes black, so in the pulmonary it is sometimes spumous, and that especially when it is quickly and abundantly discharged.

While lesions of the heart are the usual causes of pulmonary hemorrhage, contraction and insufficiency of the mitral valve is the most common of these lesions, and especially when, as is commonly the case, it is conjoined with ventricular hypertrophy. These hemorrhages are sometimes very considerable, and may recur three, four, six, eight, or ten times in the course of the disease of the heart; at other times, though rarely, they are slight and transitory, and do not reappear. When the lesion is much advanced, the patients may spit blood for one or two months, and sometimes until their death. The disposition of these hemorrhages is, in fact, to increase in frequency and in quantity as the disease of the heart—an effect of which they are—approaches its fatal termination.

ART. 53.—*The diagnosis of Pulmonary Consumption at its commencement.* By Dr. SCOTT ALISON, Assistant-Physician to the Hospital for Consumption at Brompton.

(*Lancet*, June 19, 1858.)

In this paper Dr. Scott Alison endeavors to show the importance of diagnosis at an early period by reference to facts arranged under three heads: 1st, the vast mortality in advanced stages; 2d, the great destruction of the lining structure almost invariably found when the disease has long existed, in a great proportion of cases excluding all reasonable hope of remedy; and 3d,

the material benefit afforded in a very large proportion of cases easily diagnosed and treated. The number of patients under the care of the author at the Hospital for Consumption at Brompton, who here formed the grounds for calculation, is nearly 2000. The mortality in advanced cases has been very great, and very few have presented signs of permanent restoration to health; whilst the mortality in early cases has been comparatively trifling, even when long observed. About one-half of these latter cases have been greatly improved, and have presented satisfactory evidences of the disease being arrested. Numbers have returned to their employment, or applied themselves to less laborious and exposed occupations. Muscle and fat have greatly increased, cough has been removed, and the respiration has been deprived of much of its shortness. About three-fourths of these patients presented grave symptoms and the usual physical signs; while the remainder presented either well-marked physical signs without material symptoms, or very marked symptoms with physical signs rather beneath the average weight of evidence ordinarily deemed proof of phthisis. The author regards the results as due to the early period at which disease was diagnosed, and not to any particular method of medical treatment. Early diagnosis would be secured by a complete inquiry into the history of each case, by regarding the entire series of symptoms, and by a complete physical examination instituted at once, the chest being freely exposed back and front. The present state of medical knowledge was such and so widely diffused, that it was not likely we should be able to find any new symptoms of the disease, one which had been carefully observed for ages; but it was not unlikely that we should increase our knowledge of the physical signs. In the particulars of sounds, form, and motion, additions would probably be made; but it was with respect to sound that most advance would be effected. Simple observation by the present means of auscultation would probably suffice to do much, but it was not unlikely that improvements in our instruments for auscultation would render assistance. Dr. Alison referred to certain sounds which he had frequently heard in phthisis at its commencement, and before dulness of percussion had manifested itself, or was materially pronounced. These sounds were an "arrowroot-powder" sound, very fine, and accompanying expiration; buzzing, humming, and kettle-boiling or kettle-singing sounds. He was as yet uncertain as to the mechanism of the kettle-singing sound, but was inclined to think the evidence pointed to slight pressure on the veins of the lung, causing oscillations of the blood and vessels, such conditions as are produced in the neck by gentle pressure with a stethoscope or by tightened integument. This sound is continuous, and several of the patients who presented it had suffered from hæmoptysis. Crumpling sounds had been frequently heard. A great means of discovering phthisis was afforded in the differences in the character and amount of respiration; and he (Dr. Alison) believed that the instrument which he had made, which gave a stethoscope for each ear, and which he designated the Differential Stethoscope, would prove available in rendering very slight differences in respiration appreciable, which could scarcely be discovered by the ordinary stethoscope. The ordinary stethoscope necessitated removal of the instrument from one part to another, and a certain loss of time, though slight in itself, important when comparing two sensations nearly alike, was incurred. For the diagnosis of pulmonary consumption at its commencement, we should look for the signs of that disease at that period, and not for those of later periods. The acoustic properties of the lung with small points or spots of tubercle were, and must be, different from those of that lung which is so studded with tubercles, or so infiltrated with that material, that nearly all the lung-tissue proper is pressed upon or obliterated, or when the lung is broken down and has little cohesion, and presents numerous cavities. (The Differential Stethoscope was exhibited to the society.) In many examples of pulmonary consumption no dulness on percussion whatever is found; and not one of the recognized signs is present in all cases, or even at all times in the same case. We must be content with a certain amount of evidence, and that will not be the same in all cases, or in the same case at different times. Deviations from the natural configuration of the chest occurred in pulmonary consumption at an early period. *These were made out by their history and by comparing one side with another.*

The author's Chest-Goniometer would serve in discovering the deviations from the natural angles and curves, and in measuring them. The measurement at one period might be compared with the measurement at another.

Specimens of tuberculated lung, both in the early and later stages of the disease, served to prove that the physical signs in the different conditions of lung must greatly vary, and that the lung dotted with solitary tubercles the size of mustard-seeds would afford few, if any, of the ordinary signs, and chiefly produce deviations in quality from the natural respiratory sounds, and some such delicate new sounds as had been referred to. The author was not prepared to say that these delicate sounds would not be found in other morbid states besides phthisis, but the same limitation held in respect of all other sounds.

The examination of the sputum, and the discovery, by means of the microscope, of tubercle and lung-tissue, were referred to.

ART. 54.—On the Influence of Sea-Voyages and Warm Countries upon the Course of Phthisis. By Dr. J. ROCHARD, Surgeon-in-Chief of the Marine at Brest.

(*Archiv. Gén. de Méd.*, Feb., 1858.)

This memoir, crowned by the Academy of Medicine in Paris, is calculated to shake our faith in the ordinarily received opinion that sea-voyages and warm countries exercise a favorable influence upon the course of pulmonary consumption. Dr. Rochard has found, it appears, that consumption is more common in the navy than in the army, and that the course of this disease, and the development of tuberculation, is more rapid on the sea than it is on land. Hence, the naval profession is to be avoided where there is a predisposition to consumption. Dr. Rochard also advances some statistical evidence for supposing that the tropics and all hot countries are obnoxious to consumptive patients.

ART. 55.—On the Supposed Propensity to Phthisis in Persons of Xanthous Complexion. By Dr. JOHN BEDDOE, of Clifton.

(*Edin. Med. Journal*, July, 1858.)

After some preliminary remarks on phthisical patients, Dr. Beddoe proceeds to his own observations—observations which derive their value from the fact that certain investigations, undertaken for another purpose, into the proportions in which the same combinations of complexional colors occur in the general population, enable him to furnish a trustworthy standard of comparison. The number of cases noted was 500; of the patients, 240 were natives of Scotland, and were almost all observed in the Royal Infirmary of Edinburgh; 217 were English, of whom 74 were seen in Brompton Hospital, and the rest in London, Bristol, and various parts of the country; 43 were Irish, seen in Edinburgh and elsewhere. Persons having gray hair were not noted.

The following tables exhibit the complexional characters of these 500 persons, compared with those of the general population of London, Bristol, and Edinburgh, of the natives of Edinburgh admitted into the Infirmary for all diseases, and of the Irish population of that city. The proportions are in all cases reduced to percentages:—

TABLE II.

	No. of observations.	EYES LIGHT.					EYES NEUTRAL.					EYES DARK.				
		HAIR.					HAIR.					HAIR.				
		Red.	Fair.	Brown.	Dark.	Black.	Red.	Fair.	Brown.	Dark.	Black.	Red.	Fair.	Brown.	Dark.	Black.
Phthisical individuals	500	3.8	9.9	21.2	13.9	1.7	.8	1.6	4.3	7.5	.6	1.1	.7	5.9	20.6	7.0
Of whom Scotch	240	4.4	9.6	1.6	12.3	3.1	.8	2.7	3.1	4.8	.2	1.7	.4	7.5	21.7	6.2
Natives of Edinburgh,																
Royal Infirmary	250	4.6	11.0	25.2	10.6	1.0	.4	2.4	8.0	5.2	.4	.6	1.0	7.6	16.8	5.2
Edinburgh streets	2500	5.2	13.5	28.0	11.2	1.2	.6	1.8	5.7	6.3	.7	.7	1.1	6.4	33.7	4.6
London streets	2000	3.1	9.4	28.5	11.9	.5	.5	1.7	6.5	5.5	.3	.6	1.2	7.2	19.8	3.0
Bristol streets	1000	2.0	10.8	29.7	13.1	.6	.5	1.3	3.1	3.0	.2	.9	.5	6.7	20.2	3.3
Irish, mostly Fife and Connaught	575	5.2	9.1	30.9	17.1	6.7	.2	1.0	3.7	6.6	2.1	.2	.2	2.6	11.0	6.6

Perhaps the facts may be rendered more easily appreciable by a different arrangement, as in Table III.

TABLE III.

EYES.				HAIR.				
Light.	Neutral.	Dark.		Red.	Fair.	Brown.	Dk. brown.	Black.*
50.0	14.7	35.3	Phthiical persons	5.2	12.1	31.4	42.0	9.3
37.9	11.6	37.5	Do. Scotch	6.9	12.7	32.1	38.8	9.5
52.4	16.4	31.2	Edinburgh natives	5.6	14.4	40.8	32.6	6.6
59.4	14.1	26.4	Edinburgh streets	6.5	16.7	40.1	30.8	6.4
33.4	14.6	31.8	London	4.2	12.3	42.5	37.2	3.8
56.2	12.1	31.6	Bristol	3.4	12.6	41.5	38.3	4.1
66.0	13.6	20.6	Ireland	5.6	10.3	37.0	34.7	12.4

The indications of these tables seem to me tolerably clear. They not only disprove the old notion of the special liability of xanthous persons, but go far towards proving consumption to be more rife among dark-eyed, dark-haired people.

Dark eyes, it will be seen, were more frequently met with among the phthiical than in any one of the five sections of the general population, with which Dr. Beddoe has compared them.

Red hair rose slightly above, and fair hair fell a little below the average. Brown hair (corresponding to the "chatain" and "chatain clair" of the French, and not to their "brun") counted little more than three-fourths of its proportionate number. Dark brown, on the other hand, rose almost as high above the average, and black still higher, showing an excess in the proportion of more than 3 to 2. The frequency of black hair among the non-phthiical Irish does not tell much on the average, as Ireland furnished only 43 cases out of his 500—less than 9 per cent.

Dr. Beddoe could detect only one possible source of fallacy worth mentioning. It is conceivable that the progress of the disease may be in general more rapid, and the duration of sojourn in hospital consequently shorter, in fair than in dark subjects. The result of this would be to diminish unduly the number of xanthous persons present in hospital at any given time. The observations taken in Edinburgh, fully one-half of the whole, are almost free from this objection, having been made while the author was resident in the infirmary, and had the opportunity of examining the cases on or soon after their admission.

That consumption may be very frequent among persons of fine skin and delicate complexion, Dr. Beddoe by no means intends to deny; in fact, he believes that a very fair complexion, especially when conjoined with black hair and eyes, is very often associated with proclivity to tubercular disease. But into this question he does not enter, inasmuch as it cannot, like that which has just been discussed, be readily brought to the touchstone of numbers.

ART. 56.—*Effect of Local Influence on Spasmodic Asthma.* By Dr. HYDE
SALTER, Assistant-Physician to the Charing Cross Hospital.

(*Edin. Med. Journal*, June, 1858.)

The following conclusions appear to be established by several cases related in this paper:—

1. That residence in one locality will cure, radically and permanently cure, asthma resisting all treatment in another locality.
2. That the localities that are the most beneficial to the largest number of cases are large, populous, and smoky cities.
3. That this effect of locality depends probably on the air.
4. That the worse the air for the general health, the better, as a rule, for asthma; thus the worst part of cities are the best, and conversely.

* This class includes not only coal-black, which is rare in this country, but certain shades of dark brown, which are not readily discriminated from black unless in a very good light.

5. That this is not always the case, the very reverse being sometimes so—a city-air not being tolerated, and an open pure air effecting a cure.

6. That there is no end of the apparent caprice of asthma in this respect, the most varying and opposite airs unaccountably curing.

7. That, consequently, it is impossible to predict what will be the effect of any given air, but that probably the most opposite to that in which the asthma seems worst will cure.

8. That some of these differences determining the presence of cure of asthma appear to be of the slightest possible kind, arbitrary and inscrutable.

9. That the mere conditions of locality appear to be adequate to the production of asthma, in a person whose disposition to it was never before suspected, and who probably would never have had it had he not gone to such a locality.

10. That, consequently, many healthy persons, who never have had asthma, and never may, probably would be asthmatics if their life had been cast into other localities.

11. That *possibly* there is no case of asthma that might not be cured if the right air could only be found.

12. That the disposition is not eradicated, merely suspended, and immediately shows itself on a recurrence to the original injurious air.

13. That change of air, as change, is prejudicial.

14. That, from the caprice of asthma, the constancy of the results in any given case is often deranged.

ART. 57.—*On Measuring the Capacity of the Chest in Disease.* By Dr. J. SCOTT ALISON, Assistant-Physician to the Hospital for Consumption, Brompton.

(*Dr. Beale's Archiv. of Med.*, No. II., 1858.)

While the capacity, the dimensions, and the expansion of the thorax are respectively well gauged by the spirometer, the inch-measure, the callipers, and the stethometers of Quain and Sibson, we have hitherto employed no means for measuring the form of the chest as represented by its curves and the angles at which the planes of its component parts meet. To measure the curves and angles of the chest, the above means are totally void. It frequently happens that the natural curve of a part of the thorax becomes altered in disease, that a curve is replaced by an angle, and that one angle is substituted for another. The eye, it is true, may detect these changes, but by measurement exactitude is obtained, and a record is formed which at another time may serve for a comparison and as a test of reduction or increment. For the measurement of curves and angles the stetho-goniometer has been constructed, and its employment has been found useful. By means of it, important alterations have been gauged. Certain deviations from the natural configuration of the chest, of great extent, as shown by this instrument, have been measured, which elude the operation of all other means. A loss or increase of roundness in the upper and front part of the thorax, so small as to defy the callipers and inch-measure, will be made manifest and be exactly measured by the stetho-goniometer. If, as often happens in phthisis, the articulation of the second costal cartilage with the sternum, or of the second rib with its cartilage, instead of forming part of a curve, has become angular, the deviation is accurately measured.

It has been found that at a very early period of many examples of pulmonary consumption one side of the chest undergoes an alteration in its curves, and differs from the other side; the stetho-goniometer accurately measures this loss of symmetry. The stetho-goniometer may be used not only to measure the angles which the plane of one portion of the chest makes with that of another part, but to measure the angle at which a part of the chest meets the horizontal or the perpendicular line. Thus the first rib may, from contraction of the lungs and pleura, decline as it proceeds from the median line of the body; the amount of this declination may be accurately learned by placing one arm of the stetho-goniometer along the plane of the rib and the other in the plane of the horizon. The angle shown on the instrument is the angle of the rib with the horizontal line. The plane of a part may be compared with the median or transverse lines of the body. The sternum may be deflected from its median position

assuming an oblique situation; the angle it forms with the median line is shown by placing one arm of the instrument in the plane of the sternum and the other in the median line. The exact amount of deformity is thus ascertained.

The stetho-goniometer is constructed of ivory. It is composed of two arms, the same as the goniometer employed for the measurement of crystals. The arms are three inches long, and are jointed together. An arc, graduated into degrees, is attached to the arms where they meet and at their revolving point. A vernier is placed upon the arc for the purpose of measuring a part of a degree (1°). This vernier subdivides the degree (1°) into twelve parts, and each of these twelve parts represents $5'$ (minutes). The vernier will seldom be required in measuring the chest, as *extreme* nicety is not commonly desiderated. The arrow upon the vernier-arm is the index of the degree. When both arms of the stetho-goniometer are in the same plane, as upon a level surface, the arrow on the vernier-arm points to 180° upon the arc. The degrees upon the arc range from 20° to 220° , which will include all angles which will usually come under treatment.

When an angular part is to be measured, the centre or junction part of the instrument is applied upon the point of junction of the two planes, and the arms are respectively placed upon them, the edge of the arms being set upon the parts to be measured. The arrow now indicates the degree.

When a curve is to be measured, say the curve of the natural mammary region, or the lateral curve of the dorsal spine, the part of the curve which is its apex is fixed upon, and the centre part of the instrument is placed over it, while the arms are made to touch respectively a point in the middle of the part of the curve on either side of the apex. The arrow on the vernier points on the arc to the degree of the angle to the tangents to the curve. Curves belonging to greater or smaller circles may be thus advantageously compared.

Depressions or hollow parts of the chest may be measured with the stetho-goniometer. When angular, the instrument, at its joint, is applied to the point of union of the two planes of the part, and the two arms laid upon the retiring planes respectively. When a curved hollow is to be measured, the centre part of the instrument is placed near the lowest part of the hollow or depression, and, as it were, opposite to the apex of the curve, and the arms are held on either side, parallel with two imaginary tangential lines.

The deviations which most frequently occur and which it is desirable to measure, are chiefly the products of tubercle, of cavities in the lung, pleurisy, and the obliteration of the vesicular structure of the lung which occurs in pneumonia and bronchitis, also of empyema and intra-thoracic tumors.

The stetho-goniometer is light, portable, simple, and exact, and easy of application.

(C) CONCERNING THE CIRCULATORY SYSTEM.

ART. 58.—*On the Results of Adherent Pericardium.* By Dr. GAIRDNER, Physician to the Edinburgh Infirmary.

(*Edinburgh Medical Journal*, June, 1858.)

The object of this note is to direct attention to some statements of facts brought forward by M. Henry Kennedy, and which do not harmonize with certain conclusions arrived at by Dr. Gairdner in 1851.

"The only thing in Mr. Kennedy's paper which can be called new," writes Dr. Gairdner, "is a collection of 90 cases of adherent pericardium, 'excluding strictly all where valvular disease was present.' From this large assemblage of cases he hopes to prove the proportion in which hypertrophy, dilatation, and atrophy follow upon adhesion. Unfortunately, he omits to tell us whence the cases are derived; though it seems scarcely too much to infer that they are collected from 'museums and catalogues,' either in Dublin or elsewhere. In a note the author expresses a misgiving, which we have to be but too well founded, as to the inadequacy of his data upon which he rests upon them."

"These conclusions are as follows (I give them the form of general expressions, in order to compare them with my own): 1st, that in simply adherent pericardium the heart remains healthy till death in not much more than one-third of the cases (34 out of 90); 2dly, that it undergoes hypertrophy, or hypertrophy with dilatation, in considerably more than a half (51 out of 90); 3dly, that it undergoes atrophy in one-eighteenth of the cases.

"It is in reference to this last conclusion that the author chiefly expresses the misgiving referred to above. 'Can it be,' he says, 'that specimens of this state are not kept in our museums or catalogues; hypertrophy and dilated cavities only being thought worthy of putting up?' I shall not presume to judge absolutely whether this be so; but that some further explanation is required, not only of this, but of the other conclusions above mentioned, I firmly believe; and this on the following grounds, derived from the paper in the 'Monthly Journal' for February, 1851.

"From a series of 500 miscellaneous post-mortem examinations, performed in the Edinburgh Infirmary, I carefully selected all the cases of adherent pericardium in which the adhesions were so considerable, and so situated, as to restrain the movements of the heart. It is probable that Mr. Kennedy, to obtain a similarly broad basis for his 90 cases of adhesion, would have required to search through the records of 3000 general cases; for my 500 cases only yielded 15 such adhesions. Of these 15, I found 5 in which the condition of the heart was morbid; 10 in which it was not so. Add one, or even two more, as being *possibly* within the limits of disease; it will still be true, that in more than a half of these cases the heart had suffered no apparent morbid change, although in all of them the adhesions were plainly of very long standing. But as this statement includes two cases of valvular and other disease of the heart, excluded, and rightly excluded, by Mr. Kennedy's plan (though retained by me for reasons specially stated), it would be nearer the truth to say, that in at least two-thirds of my cases of adherent pericardium there was no secondary lesion of the heart fairly attributable to the existence of the adhesions.

"The case, therefore, as between Mr. Kennedy's results and my own, in regard to the existence of secondary disease of the heart, stands thus: Mr. Kennedy finds secondary disease in nearly two-thirds of his cases; I find it in about one-third of mine. In his, in other words, the large majority were morbid; in mine, the large majority were either healthy, or not decidedly morbid. Is this the consequence of the selection on his part being from 'museums and catalogues,' instead of from the whole field of nature? I am disposed to think so.

"As regards the question of hypertrophy and atrophy, I am quite sure, from my own observation, that there is a good deal of room for difference between different observers, according to their preconceived ideas of what conditions are entitled to these names. I have very frequently seen very small-sized hearts in connection with adhesions of the pericardium; several such cases, indeed, are alluded to in my paper in the 'Monthly Journal.' But in all of these the small size of the heart appeared to me, at the time, fully accounted for by the state of the general system. If it really deserved to be called atrophy in these cases, it was part of a general atrophy of the muscular system, and no special cardiac disease. I have, indeed, seen a very few cases which have appeared to justify the opinion of Dr. Chevers and others, that adherent pericardium may lead directly to atrophy, when the adhesions are very dense; and especially, I would say, when they have supervened upon very long-continued effusion. But such cases are, I believe, quite exceptional; and I am fully satisfied that ordinary fibrous adhesions, when not so thick and dense as altogether to prevent expansion mechanically, tend rather in the direction of hypertrophy and dilatation than of atrophy.

"On the whole, I am very willing that the doubtful points in this difficult subject should be reserved for further and more accurate observation; but I can see no reason, in the meantime, to abandon the conclusions which I was led to adopt in 1851. I have little difficulty, on the one hand, in rejecting the opinion of Hope and others as to the invariably and rapidly fatal tendency of

pericardial adhesions; on the other hand, I regard them as a cause of disturbance very likely to precipitate the course of other diseases leading to embarrassment of the circulation, and not unlikely to be followed, after a longer or shorter time, by hypertrophy and dilatation. For the fuller statement of these opinions I beg to refer to the paper itself; commending the whole subject to the attention of the clinical observer, by whom alone satisfactory data as to the course of this disease can ultimately be furnished. In the meantime, let us not, upon too light grounds, deprive ourselves of the modicum of comfort and satisfaction which we may derive from believing that a certain, not small, proportion of persons affected with pericarditis, and with its sequela of adhesion, may survive the attack for many years, and may live in tolerable comfort, under favorable circumstances, without the inconvenience and the dangers attendant upon a dilated, hypertrophied, or atrophied heart. I believe that I have seen such cases; though from their very nature their diagnosis must be uncertain, as their ultimate issue must remain doubtful."

**ART. 59.—*Acute fatty degeneration of the Heart as a complication of Pericarditis.*
By Professor VIRCHOW.**

(*Archiv. f. Pathol. Anat.*, t. xiii. 1857; and *Archiv. Générales de Méd.*, Sept. 1858.)

M. Virchow has met with two instances of this change, one in a person who had purulent pericarditis and died suddenly; the other, in a person who had been attacked with hemorrhagic pericarditis and died speedily, feebleness of the pulse soon followed by intermittency being the most marked phenomena. In both these cases the superficial muscular layers of the heart were yellowish, opaque, and friable, and so far advanced in the state of fatty degeneration that their proper muscular structure was no longer discernible; and in a lesser degree every part of the heart was affected in the same manner. This form of fatty degeneration differs essentially from the ordinary form, which pursues a chronic course, and affects, first, the muscular fibres subjacent to the endocardium. It is considered by M. Virchow as the direct effect of the pericarditis—an effect of the extension of the inflammation of the serous membrane inwards.

**ART. 60.—*On the relative importance of disease of the Aortic and Mitral Valves.*
By Dr. WILKS, Assistant-Physician to Guy's Hospital.**

(*Guy's Hospital Reports*, 3d series, vol. iv. 1858.)

"In looking through our cases of heart disease, and observing the histories accompanying them, we think we discern the reason for the difference of opinion entertained respecting the duration and relative importance of the two forms above mentioned. Judging simply from clinical experience, we should incline to second the opinion generally held respecting them, that the mitral is the more severe disease, that is, that when the patient with this form of malady comes before us, he is very often (at least in hospital practice) suffering from dropsy and other symptoms denoting speedy dissolution, whereas the patient with aortic disease speaks of symptoms which have had longer duration and less severity, and he perhaps leaves us again in improved health. Judging then from the duration of illness or loss of health in the two cases, we conclude that the general opinion is correct as to the greater severity of the disease which has its origin in the mitral valve. If, however, we endeavor to discover the time at which the respective maladies commenced, we may readily arrive at an opposite conclusion, but then we are obliged to adopt a different method in the two cases. In the first place, we must inquire what is the origin of the two forms of disease. Our own records most fully corroborate the opinion that disease of the left auriculo-ventricular orifice has its origin in rheumatic endocarditis, and that the disease of the aortic orifice is due generally to a strain on the vessel or valves, and occurs for the most part in men who are accustomed to work hard and use strenuous exertions with their arms. Disease of the aortic valves undoubtedly may arise from endocarditis, but in the majority of instances it appears to arise from the cause named; but whether this be from undue pressure acting on the vessel through the parietes of the chest, or

whether from an over-strain of the blood on the vessel internally, is a question not yet decided. We have then two classes of cases (of course with numerous exceptions) of valvular disease, that of the mitral and that of the aortic valves, and since the former so generally arises during a rheumatic attack we generally date its origin to the time at which that occurred, whereas, in the latter case, we can do nothing but discover the duration of the symptoms, and date the commencement of the disease to their first recognition. In one case we inquire about the rheumatic attack, and in the other, how long symptoms denoting cardiac disease have existed. In the majority of the latter cases, which are those of men who are sawyers, deal porters, &c., and accustomed to great exertions, we find that the symptoms have existed only for two or three years before death; in some cases the time is longer, but this appears to be the most usual period for the progress of the malady; whereas, in the case of disease of the auriculo-ventricular orifice, although we may not have a history of marked symptoms for so long a period, yet the patient may allude to some slight distress connected with the circulation for a period dating from a rheumatic attack perhaps twenty years before, though in many cases there have been no symptoms whatever. Judging from a large number of cases, we think the conclusion is correct that the disease of the mitral valve has been for the most part of longer standing than that of the aortic; but then the question at once arises, because an inflammatory process was set up at the period supposed or even a contraction of the orifice then took place, does it necessarily follow that such an impairment of the apparatus occurred as to constitute it a disease, or make it productive of manifest symptoms which might be styled unequivocally cardiac. We think in all probability in these cases of contracted mitral orifice no great impairment of the orifice took place, seeing that no marked symptoms had been present, and we cannot even look upon the changes which may have occurred in the cavities of the heart as an indication of the duration of its existence. The enlarged and hypertrophied left auricle, and increase of right side of heart, does not explain how long the contracted orifice has existed, any more than the enlarged left ventricle does the aortic mischief. This difficulty in knowing how long a contraction of the mitral valve has existed, recurs in every case met with; we date the first onset to the rheumatic attack, even should this have occurred several years previously; but then the question arises, did the contraction altogether occur at that time, but that owing to subsequent conservative changes in the heart and generally diminished circulation, of which the mitral orifice is the measure, no symptoms of cardiac disease existed, or has the change in the valve been essentially chronic and progressing during several years, or was the alteration in the first place slight, and subsequently during the time of the last fatal illness the more important changes occur; whichever view may be taken, there can be no doubt that very important changes do take place during this latter time, such as chalky degeneration, alterations in the muscular tissue, &c., which necessitate regurgitation through the orifice and the more urgent symptoms.

"In commencing to make these remarks upon this question we had intended to take the duration of the disease in the two classes of cases, and striking an average, show the difference between them. This, however, we shall not do, as it might lead to error, for reasons above named, and also because the history attached to the *post-mortem* records has been derived from other sources than our own, and the dates of the illnesses cannot be accurately depended upon; still, on looking through a large number of cases on which we can rely, the inference is as is stated—that, taking the duration of the severe symptoms, or the time in which the patient has called himself ill, the disease of the aortic valves has continued for a longer time, that is two or three years, while that of the mitral only for a few months; and, on the other hand, as in the one case we have no knowledge of the existence of the disease otherwise than connected with symptoms, and we only date it back to their commencement, whereas, in the case of mitral disease we date it to an inflammatory attack which has generally occurred several years before, we find the opposite rule holds good, that disease of the mitral valve is of much longer duration before a fatal issue than disease of the aortic valves.

"These remarks we think explain the different opinions which we have heard expressed respecting the relative severity and importance of the two lesions, but they do not solve the question; this we think can only be done by carefully watching several cases during many years. If, for example, in the two classes of cases, the time of onset of disease could be accurately known, and the cases watched to their conclusion, some approach to accuracy might be obtained, though even then it is possible that slight changes might have existed for years without symptoms. We believe most physicians would admit that a regurgitation through the mitral orifice was more important than a similar condition of the aortic; but it is another matter how long the two affections may have been in process of production, and although the one may be a more important lesion than the other, and the disease more speedy when such lesion obtains, yet the process preceding this may have been of much longer standing, being in fact a slower change, the result of inflammation unattended by symptoms, while the other disease might be called accidental, and at once productive of slight disturbance. This we believe to be a fair conclusion from the result of our cases, not very precise we admit, but we are unwilling to add any greater weight to our statements by the addition of figures, our object being at present merely to afford an explanation of the different opinions which have been expressed on the subject."

ART. 61.—*On some peculiar Cardiac Sounds.* By Dr. EDWARD SMITH, Assistant-Physician to the Hospital for Consumption at Brompton.

(*Lancet*, Sept. 11, 1858.)

Three patients were recently under Dr. Smith's care, in whom he has ascertained the existence of a sound in the chest which is rare and deserving of notice. It is situate only in the second and third intercostal spaces of the left side, on front, and midway between mid-sternum and coracoid process, and is restricted to a space which may be covered by the stethoscope. The following is a short description of each case, with notes of the character of the sound made at each visit:—

CASE 1.—M. N——, a female, æt. 21; single; a servant; has tubercle of both lungs in a state of softening. She has been ill but two months, and then had giddiness and a little hæmoptysis, followed by a little cough, but no dyspnoea, or palpitation of the heart. Soon afterwards, and not before, she lost flesh and strength, and had swelling of the feet. She had also pain on the level of the left nipple, which passed up to the left shoulder. She is now thin, very excitable, and has flushed cheeks, with much debility and dyspnoea on exertion. There is but little cough or spitting. The appetite and digestion are good. Tongue clean, and bowels regular. The pulse is 136, and respiration 34 per minute; and the vital capacity is only 50 cubic inches. Her height is 5 ft. 0½ in. On the right side there is great dullness on percussion universally, with very feeble and short inspiratory efforts, and a cavity. On the left side, the dullness is chiefly below the third rib, with harsh respiration and indistinct signs of a cavity at the third intercostal space, stretching across the chest in the left side. At this place there is a short, sharp thrill with each pulsation of the heart, and there are three between the inspirations. It is not heard during inspiration, because the inspiratory sound has a similar tone and quality, and is louder; but it is heard immediately the inspiration has ended, and with the inspiration, and in the interval between the inspirations. It is heard when the breath is held in expiration; but it is then of a softer quality, and seems a little more distant. It is not heard when the breath is held in inspiration. There is a double sound at the base of the heart; but at the apex the sounds are normal. Both pulses are synchronous with the sound under discussion, and are distinct and regular. There is no thrill when the hand is placed over the heart or the lungs, and no peculiar movement in the arteries or veins; but the action of the heart feels tumultuous. She never had pain at this spot, nor any sign but palpitation, and that during a fortnight only.

In a fortnight the sound was audible at the same place, but somewhat less extensive. The respiration was still harsh, short, and wavy. She

is no worse. In ten days further the sound is still distinctly heard, but it is not heard when she whispers.

Dr. Smith was of opinion that this sound was a modified heart-sound: and the sound of the heart could be distinctly heard at the same time in another tone. The quality of the tone of the sound referred to is much that of a rough bronchial respiration.

CASE 2.—C. H.—, a shipwright, æt. 25; single; has tubercle with a cavity in the right lung, and probably deposited tubercle in the left. His vital capacity is 152 cubic inches. On April 30th the heart was healthy. On May 14th he complained of pains in the left side with palpitation; but, except for a foul state of the tongue, he progressed very favorably through the whole year. On December 24th, Dr. Smith discovered the sound referred to in the third space, and then learnt that sometimes he had suffered from pain at that spot. There is a systolic bruit now perceptible at the apex of the heart, and it appears that he had rheumatism badly thirteen years ago. The pulse is 90 per minute, whilst the repetition of the sound referred to is 124 per minute. On February 3d there was a rough first sound of the heart, and the sound under inquiry was still heard in the second and third spaces. He was discharged, feeling almost well.

CASE 3.—The third case is that of a smith, æt. 20, single, and very thin, and feeble, who two months previously appears to have had an attack of pneumonia on the left side, but he was not at that time seriously ill. He has much cough and dyspnoea and frothy sputa, and his tongue is white and bloodless. There is tubercular deposition and a cavity in the right side, and in the left much consolidation, but chiefly at the base, and there is wavy respiration. The sound under discussion is heard in the second space on the left side, chiefly in the position before mentioned. The sounds of the heart are heard under the stethoscope fully one inch to the right of the sternum, and do not quite extend to the nipple; so that there is possibly some displacement of the heart, but certainly enlargement of the heart on its right side. In five weeks the sound is still audible, but not with constancy; and it is not heard with full inspiration, nor without respiration. The pulse is 140, and the respiration 21 per minute.

ART. 62.—*A Needle Implanted in the Septum of the Heart without causing Special Symptoms.* By M. PIORRY.

(*L'Union Médicale*, March, 1858; and *Med.-Chir. Review*, July, 1858.)

A man, æt. 54, a drunkard, was admitted into the Charité on February 10th, 1858, with symptoms of pneumonia. He soon recovered, and the examination of the heart during his illness showed no abnormal bruits or special symptoms. Erysipelas of the face supervened, and death ensued on the 20th of February. The diseased lung was gorged with frothy mucus, the trachea full of sputa, the right side of the heart was dilated, and the liver very voluminous. In examining the heart a hard substance was felt, which proved to be a needle, one millimetre in width, and five centimetres at least long. It was inserted in the interventricular septum; its ends were free, the point being directed towards the left ventricle. M. Piorry is of opinion that the needle was introduced through the intercostal spaces, that it was gradually drawn away from the surface by the movements of the heart, and thus became fixed in the septum. A fibrinous concretion was found on the ventricular pericardium where the needle had entered, and both ends of the needle were covered by a fibrinous layer.

ART. 63.—*An Hydatid Tumor in the Apex of the Right Ventricle of the Heart, and Free Hydatids in the Right Pulmonary Artery.* By Dr. BDD, Professor of Medicine in King's College, London.

(*Medical Times and Gazette*, July 17, 1858.)

An hydatid tumor developed in the muscular substance of the heart is of such rare occurrence, that the following case deserves to be placed on record.

CASE.—Sarah Sheppard, a single woman, 23 years of age, stout and florid,

was admitted into King's College Hospital on the 23d of December, 1857. For the nine months preceding she had been engaged in millinery, but previously was in service.

She stated that four years ago she was laid up with pleurisy and inflammation of the kidneys. (Great pain in the loins, and dark-colored muddy urine were symptoms of this latter affection, but there was no dropsy.) From that time she had been constantly troubled more or less with cough, shortness of breath, and palpitation. Two years ago she had another attack of pleurisy. Since this second illness her health had declined, and her cough had been attended with expectoration, the matter of which was often streaked with blood.

Nine days before she entered the hospital she "took cold," and swelling of the legs came on.

On her admission to the hospital she complained of cough and shortness of breath, and her feet were slightly cedematous. While lying still in bed she had no pain or urgent symptoms, but slight exertion caused considerable dyspnoea. With her cough, which was very troublesome, she spat up mucus, partly clear and partly opaque, streaked here and there with blood. On listening to the chest, a systolic rasp-sound was heard over the base of the heart, and extending thence a little upwards and to the right. The impulse of the heart was slight, and the pulse very small and feeble. The tongue was coated, and the appetite bad. Menstruation was regular. The urine was of specific gravity 1020, turbid, with lithic deposit, and contained a very small quantity of albumen.

On the 28th of December, it was noted that the abnormal systolic heart-sound was much less rough; and on the 30th, that no morbid bruit could be heard. From that time till the poor woman's death, though I often listened for that purpose, I never heard any distinct morbid sound with the heart's beats; but the physician's assistant, who lived in the hospital, and examined her still more frequently, told me that he occasionally heard a faint systolic bellows-murmur.

From the 23d of December—the day of her admission—to the 9th of January, there was no other noteworthy change in Sheppard's condition. The cough was very troublesome, and the matter expectorated was constantly streaked with blood. The pulse ranged from 90 to 100; the number of inspirations from 36 to 48 in the minute. Crepitation was heard over both lungs behind.

On the 9th of January she spat up nearly half a pint of blood, mixed with viscid mucus; and for some days afterwards the pulse and inspirations were less frequent, the cough was less harassing, and the breathing somewhat easier.

On the 27th of January she spat blood again, in less amount.

It was noted on the 29th of January, that she keeps up her strength, and does not lose flesh. From this time she continued much in the same condition—distressed by difficulty of breathing and by cough, and spitting up mucus, generally tinged with blood. The difficulty of breathing varied considerably on different days. In the space of a fortnight—from the 26th of January to the 9th of February—the number of inspirations ranged from 30 to 48. The pulse was constantly small, but its rate varied in the same time from 72 to 90.

On the 19th of February it was noted that the breathing at the base of the lungs was nearly clear, and on the 24th of February she left the hospital.

On the 28th of February she again spat a considerable quantity of blood, and her distress of breathing increasing, she was taken into the hospital again on the 3d of March.

It was then remarked that there was a rough respiratory murmur over the upper part of the left lung in front, and over the lower lobe of the right lung behind.

On the 14th of March, cedema of the legs, which had disappeared for some time, came on again. The urine then contained no albumen.

On the 7th of April she became affected with sore-throat, and a deep ulcer formed on the left tonsil. The soreness of the throat ceased in ten days or a fortnight.

On the 12th of April she complained much of pain shooting through the left side of the chest.

From this time she often complained of intense pain in the præcordia. The præcordial space, dull on percussion, was unusually extensive; but no unnatural bellows-murmur was heard. The impulse of the heart was tolerably strong, and its action throughout was regular. The sounds of bronchitis were heard over the upper part of the left lung in front, and over both lungs behind; but in no part of the chest were respiratory sounds altogether absent. The dropsical swelling of the legs increased, and ascites also came on. The distress of breathing amounted at times to extreme orthopnea; and the countenance, which had throughout a purplish tint, was expressive of great distress. The legs and thigh and abdomen became at length tensely oedematous.

On the afternoon of the 4th of May, Dr. Duffin, the physician's assistant, on being summoned to her, found her pale, gasping at long intervals, and with a scarcely perceptible pulse. About five minutes afterwards she died.

On examination of the body both lungs were found united to the pleura costalis by old adhesions. The pericardium contained about an ounce of serous fluid. Its layers posteriorly were glued together by tolerably old adhesions. The heart was of a very irregular shape, flattened anteriorly, and bulging posteriorly. Its irregular shape was owing to an hydatid tumor, about the size of an orange, situated in the apex of the right ventricle, and projecting into its cavity. The right auricle and ventricle were filled with clotted blood; the left chambers of the heart was empty. There was no disease of the valves.

Under one of the laminae of the tricuspid valve a small flaccid hydatid was found unattached. In the pulmonary artery, immediately above the valves, an unbroken hydatid, rather more than half an inch in diameter, was found; and in the further course of the artery, before its subdivision, there were several other smaller hydatids.

On tracing the branches of the pulmonary artery, several clusters of hydatids and the collapsed skins of hydatids—ranging from one-eighth to one-fourth of an inch in diameter—were discovered in them. These hydatids were exclusively confined to the left lung, and chiefly to the upper lobe, one small cluster only being found in the centre of the lung, and one in the lower lobe. These clusters of hydatids were enveloped in pale fibrin, but not contained in organized sacs. The lower lobes of both lungs were carnified, but still crepitated slightly under the fingers. The pulmonary veins and the bronchial tubes contained no hydatids.

The liver, spleen, kidneys, stomach, uterus, and brain, and the principal venous trunks of the lower extremities were next carefully examined; but, with the exception of slight fatty degeneration of the liver, some irregularity of the surface of the right kidney, and general venous congestion, nothing abnormal was detected.

On examining one of the small hydatids taken from the pulmonary artery, I found it to contain very perfect echinococci.

The hydatid tumor in the apex of the heart was stuffed with hydatids, and it was evident that the hydatids found in the right ventricle and in the pulmonary artery had escaped from it.

A review of the course of Sheppard's illness leaves little doubt that the hydatid tumor had existed in the heart for several years. Four years before her death she was laid up with pleurisy and what was termed inflammation of the kidneys, and ever afterwards was troubled with cough, shortness of breath, and palpitation. Two years before her death she had a second attack of pleurisy, and subsequently to this frequent spitting of blood. After her death, old adhesions of the lung to the pleura costalis—such as would have resulted from attacks of pleurisy at the dates specified—were found.

Now, the poor woman was of vigorous conformation, and to the last was stout and florid. There can, therefore, be little doubt that these attacks of illness are attributable to the hydatids; but more than one other case may be cited to show that an hydatid tumor in the heart, provided it be unbroken, although it may cause terrible disturbance of the heart itself, ending in death, may not set up inflammation of the lung or pleura. It is, consequently, pro-

bable that the attacks of pleurisy were caused in Sheppard by the blood becoming contaminated by the hydatid liquor, which, from the occasional bursting of an hydatid tumor into the sac of the peritoneum, we know to be highly irritating to serous membranes. In a case that fell under my care some years ago, in which an hydatid tumor in the liver opened through the lung, and a great number of broken hydatids were coughed up, inflammation of the pleura was excited by the passage of the hydatids, and after death the right lung was everywhere united to the reflected layer of the pleura.

Appended to this case are recorded a pair of similar cases.

(D) CONCERNING THE ALIMENTARY SYSTEM.

ART. 64.—*Contributions to the pathology of the Glandular Structures of the Stomach.* By Dr. WILSON FOX.

(*Proceedings of the Royal Med. and Chir. Society, June 22, 1858.*)

The observations recorded contain the result of a series of microscopical examinations of 100 stomachs, taken indiscriminately from the bodies brought for post-mortem examination to the Pathological Institute to the Charité Hospital, Berlin, under the direction of Professor Virchow. The principal morbid conditions noticed are classified under the heads of acute and chronic affections, and described under the title of "Catarrh of the Stomach." The microscopic characters of one case of acute gastritis are described; and mention is made of the appearances presented by a case of amyloid degeneration, and of one other specimen, presenting some unusual and hitherto undescribed changes, occurring apparently in the connective tissue intervening between the glands.

Acute catarrh, in addition to the naked-eye appearances of injection, swelling of the membrane, prominences caused by glands filled with epithelium, and an increased secretion of mucus, is characterized microscopically by an increased nutritive activity displayed by the epithelial elements, which are produced with greater rapidity, and are of a larger size than normal, while their appearance is more granular than is seen in the healthy state. The glands, under these circumstances, have an unusually white appearance by reflected, and a darker look than natural by transmitted light, both of which, as well as the granular character of the individual cells, disappear on the addition of caustic alkalis. The cells break down with great facility, and frequently the gland-tubes are found filled with molecular *débris* and free nuclei. Slight fatty degeneration accompanies this condition, but does not proceed to any marked extent in the acute stages. "Granule-cells" have not been observed by the author. Both classes of glands, viz., those lined with a cylindrical, and those containing a spheroidal epithelium, appear to be equally affected, though the pyloric portion suffers with greater frequency than other parts of the stomach. The microscopic appearances observed in the case of acute gastritis recorded corresponded very closely to those above described, but the changes in the epithelial cells existed to a more marked degree, proportionate to the intense injection which was present.

The condition of *chronic catarrh*, which appears to result from repeated or long-continued attacks of the acute affection, is characterized by a series of changes analogous to those produced by chronic inflammation of other parts. It may be met with independently of any evidences of the acute affection, or appearances characteristic of both may appear simultaneously. The naked-eye appearances of chronic catarrh are—thickening of portions of the mucus membrane, occurring at times irregularly, and then giving rise to unevenness of the surface, which is due to prominence of individual follicles, and of groups of glands. Alterations in color also occur: of these the most characteristic is a slaty-gray discoloration, which is met with in patches of variable extent. Translucent spots are seen scattered over the surface, and in some parts dull, opaque white patches. There is an increase of the mucous secretion, which frequently has a peculiar glassy look.

The microscopic changes are numerous, but may be classified under the heads of—

1. Increase in the amount of the connective tissue between the glands.
2. Thickening of the *membrana limitans* of the glands.
3. Fatty degeneration of the glandular epithelium, and atrophy, and loss of the epithelium tubes.
4. Pigmentary deposit in the tissue.
5. Cystic degeneration of the glands.

1. In estimating the amount of increase of the connective tissue a fallacy has to be avoided, which arises when sections are not made directly in the line of glands, when the amount of connective tissue appears greatly increased. The amount also varies in different parts, being greater in the pylorus and the immediate neighborhood of the cardiac opening than in other parts. Cadaveric decomposition may also, by facilitating the destruction of the *membrana limitans* of the glands, give rise to an appearance under the microscope of nothing but fibrous tissue, in which free nuclei and molecular *débris* lie imbedded. A true increase is best estimated after the addition of acetic acid, when the interspaces between the glands are seen to be widened, and the nuclei of the tissue are brought into view in increased numbers. The "*état mamelonné*" is occasionally produced by marked degrees of this condition, but it frequently occurs unassociated with any other morbid change, and cannot, therefore, be considered as pathognomonic of this or any other particular affection. An appearance of an independent development of free nuclei in the midst of the connective tissue, as described by Dr. Handfield Jones, has not been seen by the author, except under circumstances where there was suspicion of their having been introduced accidentally from the rupture of the glands. Increase of the connective tissue does not appear necessarily to cause atrophy of the gland-tubes, as the extensibility of the wall of the stomach obviates the consequences which the pressure produced by its retraction would cause in a less elastic organ.

2. Thickening of the *membrana limitans* has been observed as one of the appearances of this condition. In some, but not in all cases, the addition of either acetic acid or caustic alkalis may cause this membrane to swell, and thus give rise to a fallacy; but it has been observed by the author without the addition of reagents.

3. Fatty degeneration of the glandular epithelium is very frequent. Slight degrees of this change can scarcely be considered as morbid, but in many cases the interior of the glands is entirely filled with fat-drops.

4. Deposits of pigment may take place both in the epithelium and in the cells of the connective tissue. Its presence is due to the escape of hæmatin by rupture of the overloaded vessels during the congestion which attends the earlier stages.

5. Cystic degeneration of the glands is not unfrequently a consequence of causes producing some of the above-mentioned conditions. The cysts may, on careful examination, be seen by the naked eye; and their origin, in changes in the glands, is proved by the fact that they contain either cylindrical or spheroidal epithelium, differing in this respect from the solitary glands of the intestine, whose contents are cells of smaller size and different characters. These are occasionally met with in the stomach; but the author believes that this frequency has been exaggerated, owing to the cystic degenerations having been mistaken for them. The immediate cause of the formation of these cysts seems to be in a contraction taking place in some part of the course of the tubes, either from an increase in the connective tissue around the gland, or from some change in the *membrana limitans*. The part below the contraction becomes dilated with the products of secretion, while the gland-tube above is atrophied. Sometimes two cysts may be formed in the same gland. At a later period the epithelial contents may undergo atrophy, and the cysts remain filled with a tenacious colloid matter. These cysts have been found associated with similar formations in the rectum and upper part of the digestive tube, especially in the uvula, and may possibly correspond with the condition described by Professor Simpson, under the title of 'Chronic Pellicular, or Erup-

tive Inflammation of the Intestinal Mucous Membrane.' The translucent appearance observed by the naked eye in patches of the mucous membrane, is found to be caused by fatty degeneration of the epithelium of groups of glands. It is not unfrequently found around spots of hemorrhagic erosion. To the same cause are due whitish spots seen deep in the substance; but the difference of appearance in the two cases does not seem easily explicable. Opaque, white spots, apparently superficial, are found to be due to a fatty degeneration of all the elements of the membrane, and especially of the cells of the connective tissue. They may, by breaking down, give rise to a loss of substance at the parts, and the process of their formation and disintegration offers a striking analogy to the fatty erosion of the arterial coats as described by Professor Virchow.

There is a considerable analogy between the changes produced by these inflammatory affections in the stomach and those which are met with in the kidney, tending to illustrate the laws of diseases of glandular organs in general; and though the difference in the structure of the organs causes considerable variation in the forms produced, yet the essential characters are very similar in both. In the acute stage they are chiefly evidences of increased nutritive activity, called forth by the inflammatory stimulus, as shown by the enlargement of the epithelium and the increase of protein contents in the interior of the cells. In the more chronic forms the connective tissues are those principally affected by a tendency to hypertrophy; while the gland-cells undergo a fatty degeneration, or atrophy; and the parallel is complete, even to the formation of cysts caused by similar changes in the gland-tubes of both organs.

The causes of catarrhal conditions of the stomach are, as pointed out by other observers, to be found with greatest frequency in diseases obstructing the general circulation; and changes belonging to the chronic type are found with a paramount frequency in phthisical patients, though no case of tubercle of the stomach has been observed by the author. Acute catarrhal affections appear to be not unfrequently associated with septic or other acute general diseases, and have been observed in cases of puerperal fevers and cholera, where the kidneys presented, both to the naked eye and under the microscope, the appearances observed in the first stage of Bright's disease. Chronic induration of the kidney, associated with fatty degeneration of the renal epithelium, and increase of the connective tissue, has also been observed coincidently with similar affections of the stomach.

ART. 65.—*On the Changes taking Place in Cirrhosis.* By Dr. BEALE, Physician to King's College Hospital.

(*Beale's Archiv. of Med.*, No. II., 1858.)

"From the different points which have been demonstrated," says Dr. Beale, "one is led to conclude that in cirrhosis the change always commences in the cells, near the portal aspect of the lobule, and gradually progresses towards the centre. The cells at the circumference of the lobule being exposed to the action of blood overcharged with deleterious substances (alcohol, or substances resulting from its decomposition) recently absorbed from the intestine, deteriorate in structure. In consequence of the altered state of the cells, they cease to exert that attractive force, which they possess in health in an eminent degree, upon the portal blood as it flows through the capillaries. The blood, therefore, circulates more slowly, and tends to accumulate in the organ. The branches of the portal vein become unduly distended.

"This state of things may only be of temporary duration. The cells being again supplied with healthy blood, may resume their normal functions; or, the causes which first gave rise to the derangement still continuing, will produce further and permanent alterations.

"The congestion caused at first would gradually pass off, as the blood found its way back to the cava by other channels. The capillaries of the lobule, no longer called upon to transmit the normal amount of blood, would deteriorate in structure, and their capacity would diminish. The small amount of blood

distributed to the lobule under these altered conditions would reach the intra-lobular vein by the most direct route, and the communication would be kept up by one or two straight branches passing directly through the lobule, from the branches of the portal to those of the hepatic vein.

"The wasting of the cells and shrinking of the vessels would still proceed, and the whole organ would diminish in bulk.

"The trunks of the portal vein, no longer required to transmit the enormous amount of blood which they do in health, would shrink, and the other large vessels would suffer a corresponding change.

"At the same time that the lobules were diminishing in size, the smaller interlobular fissures, in consequence of the shrinking of the vessels they contained, would scarcely be visible, and hence several lobules would appear to be fused together, separated here and there from other collections by intervals corresponding to portal canals, containing only vessels and ducts, but increased in diameter by the shrinking and alteration of the lobules which formed their boundaries.

"The impeded circulation through the liver would seriously interfere with the onward course of the blood from the intestines, and a condition of the intestinal capillaries very unfavorable for absorption of the constituents of the food would be induced, and this would be aggravated by the presence of bile impaired in quality and insufficient in quantity. At length the action of the alimentary canal would become more and more disturbed, the blood deteriorated, and consequently the actions of other organs more or less interfered with. The impediment to the circulation through the liver, and the state of the blood, favor the transudation of serum into the peritoneal cavity. The digestive process becoming much deranged, the whole organism would suffer in nutrition, all the nutritive functions are impaired, and the powers of the patient at length exhausted.

"Such is a rough history of the changes occurring in cirrhosis, as deduced from an examination of the liver after death, and a consideration of the symptoms which manifest themselves in the course of the disease. Although these views differ materially from those generally entertained with regard to the nature of the affection, they are the only ones which I believe will be found in accordance with the morbid changes which have been demonstrated.

"Let it be supposed for a moment that lymph were actually effused into the portal canals, as described, which lymph, by its contraction and subsequent conversion into fibrous tissue, impeded the flow of blood to the lobules, how are we to account for the numerous large and small vessels which still remain pervious in the portal canals? And why should the capillaries in the lobule for the most part cease to transmit blood, while those in the portal canals allowed fluid to pass through them readily? The contraction of such lymph would certainly compress the ducts, and cause them to waste; but I have shown that these are demonstrable, both in injected and uninjected preparations. The so-called fibrous tissue is traversed in every part both by vessels and ducts, and in many situations the coats of these channels are in such close contact as to render the existence of this fibrous tissue absolutely impossible; and it is doubtful if the fibrous appearance, certainly observed in some situations in uninjected specimens, is not due rather to the remains of wasted and shrunken vessels and ducts than to the presence of an adventitious tissue.

"The *very gradual* alteration and wasting of the cells, with progressive shrinking of the lobules from the circumference towards the centre, and the degeneration in the capillaries of the lobule, evidently resulting from impaired nutrition and inaction, are not easily explained by the view that cirrhosis depends upon impediment to the circulation in the portal vessels, caused by the contraction of inflammatory products effused into the portal canals. The persistence of pervious vessels in considerable number in the portal canals and interlobular fissures, and the existence of ducts which may be readily injected, are quite incompatible with such an explanation.

"From a careful examination of the parts, then, one is led to conclude that the morbid changes in cirrhosis are not dependent upon inflammation, neither is there any evidence whatever of the presence of any tissue which by its con-

traction would lead to the alterations in the structure of the gland which have been demonstrated.

"The first morbid change in cirrhosis affects the cells, and the subsequent alterations result from this, according to well-known physiological laws.

"Such a view of the pathology of cirrhosis naturally suggests observations on the treatment of the disease, but these I must postpone until many other cases have been the subjects of observation."

ART. 66.—*Aneurism of the Hepatic Artery opening into the Gall-bladder.*

By Dr. LEBERT.

(*Archiv. f. Path. Anat. u. Physiol.*, t. xiii., 1858.)

CASE.—A woman, æt. 30, who suffered for some weeks from a sense of weight in the epigastrium. On the 28th May, 1855, she felt a violent pain in the neighborhood of the stomach, and vomited a large quantity of blood, which vomiting was repeated on several occasions on the following days, until she became anæmiated to the last degree. Epileptiform convulsions, repeated more than once, and symptoms of slight jaundice preceded death, which happened from exhaustion, on the 6th of July following. On examination afterwards, the gall-bladder, the biliary duct, and the ductus choledochus were seen to be filled with coagulated blood. It was seen, also, that the gall-bladder communicated by a small opening with an aneurism in the hepatic artery, and that the bladder and this aneurism were intimately united. The aneurism itself was seated anteriorly to the vena porta, and the size was that of a pigeon's egg. Within it were several concentric layers of fibrin. The mucous membrane of the stomach was healthy, and no other lesion could be detected elsewhere.

ART. 67.—*On the symptoms caused by the presence of Round Worms in the Biliary Canals.* By Dr. E. A. BONFILS.

(*Archiv. Gén. de Méd.*, June, 1858.)

M. Cruveilhier denies positively that round worms can penetrate into the biliary canals during life. M. Bonfils, on the other hand, relates twenty-three cases, collected from various sources, which show that this opinion is incorrect. The cases also show that we may, to some extent, hope to diagnose such an accident during life. The symptoms are, violent pain in the region of the liver, accompanied by yellowness of the skin, vomiting, &c., coming on intensely and suddenly, without any other assignable moral or physical cause—the intenseness and suddenness being similar to that of the symptoms belonging to the presence of a biliary calculus in the same passages—and followed by the rejection of the worm, and the rapid subsidence of all the symptoms.

ART. 68.—*The symptoms of Cancer of the Pancreas.*

By Dr. DA COSTA.

(*North American Medico-Chirurgical Review*, Sept., 1858.)

The following passage is taken from a paper based upon thirty-seven cases, which are carefully tabulated by the author. As we might expect, the symptoms of this disease are mostly produced by the effects of the disease upon the organs—few, if any, being special, none constant.

"The main symptoms," says Dr. Da Costa, "of pancreatic cancer are a tumor in the epigastric region, pain there, or in the back, constipation, progressive emaciation and debility, and obstinate jaundice and occasional vomiting, as the disease advances. The diagnosis is possible, if these symptoms be present, and provided we are able to exclude with certainty the diseases of the stomach and of the liver. I shall not attempt to decide in how far the symptoms may be shared by other chronic affections of the pancreas. Tubercle of that organ is rare, and is associated with tubercle of the lung or of the brain. Chronic pancreatitis gives rise to many of the same phenomena; but, taking the cases which I have met with in pursuing this inquiry as my standard, I

should say that those signs which indicate a tumor, and the symptoms which show its marked growth and pressure upon other organs, are not often present; that pain does not occur to such a marked degree; that the falling off in health is very gradual, and the disease slower of progress, and also that the bowels are not as constipated, but are, on the contrary, more frequently relaxed. It is, however, fair to state, that Dr. Claessen, in a work on 'Diseases of the Pancreas' (Cologne, 1842), remarks that constipation in chronic pancreatitis is urgent and enduring."

ART. 69.—*On the Treatment of Dysentery by large doses of Ipecacuanha.* By Mr. DOCKER, Surgeon of the 2d Battalion of the 7th Royal Fusiliers.

(*Lancet*, July 31 and Aug. 14, 1858.)

"As surgeon of the 5th Fusiliers," says Mr. Docker, "I was stationed in the Mauritius nearly six years, and had, therefore, ample opportunity of becoming acquainted with this hitherto intractable and fatal disease. I say 'hitherto,' as it is my firm belief that, henceforward, dysentery may be as much under control and as expeditiously cured as simple diarrhœa.

"For the greater part of the above period—viz., from 1851 to 1857—I had availed myself of the remedies in general use. At last, disheartened with my ill success in several bad cases, wherein I had perseveringly but ineffectually employed the *secundum artem* treatment, and remembering to have somewhere seen it mentioned that the powdered root of ipecacuan, in large doses, had been given with great effect in this complaint, I became anxious to make trial of an agent declared to be of such extraordinary efficacy.

"I have tested this medicine in cases of every kind and degree. Out of upwards of fifty cases of dysentery I lost but one (in former years the mortality ranged from 10 to 18 per cent.); and in the instance in question death was caused by abscess in the liver; the primary disease had been not only cured, but very thoroughly cured, as I shall hereafter show. I must observe that I had at one time been in the habit of prescribing ipecacuan in the small doses recommended by Mr. Twining; but so ineffective was it when it was thus administered—excepting in cases of no great severity, wherein other medicines answered as well, *without* the inconvenience of nauseating—that I had long ceased to employ it. On resuming the use of ipecacuan, I gave it in doses ranging from ten to ninety grains; rarely less than twenty grains. The larger quantity was given in urgent cases only, the ordinary dose being a scruple or half a drachm. The action of these large doses is certain, speedy, and complete; and truly surprising are sometimes their effects. In no single instance has failure attended this medicine, thus employed. I am not, of course, sufficiently sanguine to expect that it will invariably succeed; but of this I am convinced, that it will effect a complete cure in an immense majority of instances.

"In all constitutions, robust as well as delicate, under all circumstances, the result is the same. In the very worst cases, when the strength of the patient is almost exhausted, after the whole range of remedies has been tried in vain, the disease running its course swiftly and surely to a fatal issue, ninety grains of ipecacuan have been given, and forthwith the character of the disease, or, I should rather say, the character of the *symptoms* has been entirely changed; for the disease itself is literally cured, put a summary stop to, driven out. The evacuations from being of the worst kind seen in dysentery, have, not gradually, not by any degrees, however rapid, changed for the better; they have ceased at once, completely. There has been no inclination even to stool for twenty-four or thirty-six hours, the patient all the time in a state of delightful ease and freedom from pain; then at last, without aid of any kind, a perfectly natural, healthy evacuation, all irritation, pain, and tenesmus, having at the same time entirely ceased.

"Nor is there the disposition to relapse so common in acute dysentery. I have not observed what may be termed a true relapse in any instance. If the patient contracts dysentery again, he does so *de novo*. All that remains—the medicine having cut short the disease—is for the patient to recover strength;

and this quickly follows, without any extraordinary care as regards diet and regimen, so indispensable and requiring such nicety of management in convalescence from dysentery generally. The usual necessity, moreover, for after-treatment, in the shape of a long course of astringents, &c., is in most cases entirely obviated, a few doses of some vegetable tonic being all that is needed.

"It may be asked by what means the stomach is enabled to retain such large doses of an emetic substance. The course I have generally adopted is as follows: In the first place, a sinapism is applied over the region of the stomach, and simultaneously a draught given containing a drachm of laudanum. Half an hour after, when the sensibility of the stomach has been, by the action of the opium and counter-irritant, as much as possible diminished, and the patient's attention is occupied with the sinapism or by conversation, the ipecacuan is administered—generally in a draught, sometimes in the form of pill or bolus—and the semi-recumbent posture steadily maintained. In a considerable proportion of cases the medicine is not rejected, or it is at least retained long enough to enable it to do its work. If necessary, I repeat it till the stomach does retain it. I never yet have been obliged to give it in the form of enema. Where so considerable a dose as sixty or ninety grains has been administered, I in general wait ten or twelve hours before giving another. Should the bowels, however, not meanwhile have acted, a repetition is not generally required. I ought here to mention that I begin the treatment of dysentery, in most cases, with an emetic—always with a thorough clearance of the bowels.

"To those acquainted with tropical dysentery, the facts I have stated relative to the action of large doses of ipecacuan may appear almost incredible; the following cases, however, all of which were under my own immediate care, will, I trust, prove that I have not exaggerated."

CASE 1.—Private J. H.—, æt. 26; admitted April 1, 1855. This man's symptoms were decidedly dysenteric (I do not transcribe the case verbatim, as it would occupy too much space), "stools scanty, containing blood and mucus, accompanied with severe tenesmus, and tenderness on pressure over the descending colon." An emetic and purge were given at the outset, then turpentine in ten-minim doses, with a grain of opium every four hours. This answered very well at first, for on April 2d the report was "stools entirely feculent, semi-fluid, homogeneous, and of dark color." And the motions continued feculent, though action of the bowels was frequent.

On the morning of the 7th (small doses of turpentine, with laudanum and astringents, had been continued up to that time), the report was "seven or eight natural semi-consistent stools during the last twenty-four hours." Ordered, powdered calumba, one scruple three times a day. This, however, proved to have been premature, for on the evening of the same day, an unfavorable change had taken place. "Bowels moved five times since morning; small quantities of feculent matter, with much blood and mucus." Ordered, sinapism to the epigastrium, and three grains of opium; half an hour after, ninety grains of ipecacuan in the form of draught. On the following morning the report was, "Bowels moved three times, very copiously, during the night; stools watery and feculent, and containing no trace of dysenteric matters. He retained the ipecacuan four hours, and then vomited. Is quite free from pain." There was no occasion to repeat the ipecacuan, for not a drop of blood or mucus was afterwards seen, and he was discharged, completely cured, on the tenth day from admission.

CASE 2.—Private A. C.—, æt. 19, an exceedingly delicate, weakly lad, admitted on the 26th of December, 1855, "with frequent purging of scanty stools, consisting of a little feculent matter, mingled with sanious mucus; tenesmus severe. Ill two days prior to admission." In this case, ipecacuan was employed at the outset; scruple doses with twenty drops of laudanum in a draught every four hours. Sinapism to the entire abdomen.

27th.—Action of bowels very frequent since admission—upwards of twenty times; stools of natural appearance, but copious and watery; tenesmus less severe. (It ought to be mentioned that, arriving from England with a batch of recruits in the month of September previously, he had, since landing in the

island, scarcely ever been free from diarrhœa.) Draughts and sinapisms repeated.

28th.—Bowels moved eight times yesterday; evacuations less watery, and five times in the night, when the stools were semi-consistent; no blood nor mucus. Ordered, compound soap pill, five grains, every six hours.

29th.—One very scanty semifluid stool only since last report. Infusion of gentian three times a day.

30th.—No motion since yesterday. Gentian continued.

On the 31st, the bowels being still confined, they were gently moved with castor oil.

The patient was discharged quite well on the 9th of January. Eight days after, it was necessary to re-admit him on account of diarrhœa. Ordered, mercury with chalk, quinine, and Dover's powder every four hours. Next day he was better. On the 16th, however, there was a trace of blood in the stools. Ten grains of ipecacuan were added to each powder (every four hours).

Jan. 17th.—The blood had disappeared; stools were semi-consistent. He went on very well, gradually gaining strength, till the 24th, when diarrhœa returned.

25th.—Stools now contain blood and mucus, and are attended with straining. Ipecacuan renewed in ten-grain doses, every four hours.

26th.—Bowels not moved once since yesterday; three times during the night; stools semi-consistent, feculent, and intimately mingled with tenacious mucus. Ipecacuan draughts continued.

27th.—Stools of much better appearance.

On the 28th, they were "perfectly natural," and so continued, with occasional relaxation, but free from the least trace of dysenteric matters for eleven days; then, on the evening of the 8th of February the report was, "Bowels moved twenty times since morning; evacuations scanty and consisting wholly of sanious mucus." Ordered sinapism over the stomach, and draught containing twenty minims of laudanum; half an hour afterwards, sixty grains of ipecacuan.

Feb. 9th.—Up very little during the night, passing, altogether, not quite half a tea-cupful of sanious mucus; tenesmus, but no pain in the abdomen. Ordered, castor oil, twenty minims; mucilage, one ounce; ipecacuan powder, one scruple; tincture of opium, ten minims; peppermint-water, one ounce, every four hours.

On the 10th, the only change observable was, that very little blood was passed. Ipecacuan powder, ten grains; tincture of opium, twenty minims; camphor mixture, one ounce; liquor acetate of ammonia, half an ounce, to be taken every four hours.

Under this treatment he daily improved, and on the 13th the stools were "few and perfectly natural."

After a second complete intermission of fourteen days, during which he was only kept in hospital for the recovery of his strength, he *again* had a return of dysenteric symptoms, "seventeen or eighteen stools, feculent at first, but latterly tinged with blood; tenesmus, with tenderness on pressure over the abdomen generally." Once more recourse was had to the ipecacuan draughts, as on the 10th, which had answered so well. Evening: A few drops only of sanious mucus passed since morning. Ordered, castor oil, two drachms.

28th.—Purged seventeen or eighteen times during the night, and has passed a quantity of healthy feculent matter. Draughts repeated; also on the 29th of March.

April 1st.—The report was "stools perfectly natural," and his bowels continued composed till the 7th, when the stools again contained a little mucus and blood. Ordered the following draught, every six hours: Oil of turpentine, ten minims; mucilage, half an ounce; tincture of opium, twenty minims; powdered ipecacuanha, ten grains; peppermint-water, one ounce.

On the 8th and 9th (the draughts being continued) the action of the bowels was frequent.

10th.—No change having been made in the treatment, the motions were "natural and formed."

tive of extremest danger. Fortunately, recourse was had to ipecacuan; and this medicine was given in full (drachm and a half) doses three times. But I must not anticipate. As this case is so interesting, I make no apology for transcribing it nearly in full:—

CASE 5.—Private J. T.—, æt. 28, admitted March 18th, 1855; a slight, narrow-chested, delicate man. Has frequent purging of copious stools, consisting mostly of fluid-feculent matter, with some admixture of mucus and much blood. Says "he has no pain in the belly, no tenderness on pressure." This was taken *cum grana salis*, for there was an evident disposition to make as light as possible of his complaint: he knew he had been guilty of disobedience of orders in not coming to hospital sooner. Closely questioned, he at last confessed that he had been ill for several days before reporting himself sick. Admits having tenesmus. He was under treatment for acute dysentery in April, 1852. Ordered an emetic immediately, and every four hours a draught consisting of oil of turpentine, ten minims; acacia mucilage, half an ounce; tincture of opium, twenty minims; peppermint-water, one ounce. In the evening the report was: "Has passed since morning two scanty dysenteric stools." Ordered half an ounce of castor oil and twenty drops of laudanum.

March 19th.—Eight motions during the night, copious, feculent, and semi-fluid, with some froth tinged with blood on the surface; pulse 92, soft; tongue coated in the centre. To continue draughts of turpentine, &c.—Evening: Bowels have acted three times since morning; stools scanty, and of a highly dysenteric appearance. Ordered ten grains of calomel and one of opium immediately: the same to be repeated at four o'clock in the morning.

20th.—Has had during the night eight or nine motions, fluid. Dark-colored, feculent, with a little mucus, and more blood on the top; straining very severe, and there is much tenderness on pressure over the cæcum; pulse 132; soft and rather full; tongue furred. Ordered—calomel, two grains and a half; tartar emetic, one-eighth of a grain; hydrochlorate of morphia, one-sixth of a grain, every four hours.—Evening: Bowels moved eleven times since morning; stools more dysenteric in appearance, with less of feculent matter. A sinapism was ordered to be applied immediately over the stomach; internally, sixty minims of laudanum, and half an hour after, a draught consisting of a drachm and a half of ipecacuan to an ounce and a half of water.—Ten P. M.: The report was that he retained the ipecacuan draught two or three minutes only; has been moved twice since six P. M.; stools very bad indeed, quite liquid, with hardly a trace of feculence, consisting chiefly of a little mucus and a very large proportion of fluid blood; he is excessively weak; pulse rapid and thready, intermittent; surface cold, and bathed in perspiration; tenesmus severe. The opiate draught was now repeated, but this time with twenty minims only of laudanum; half an hour after, ninety grains of ipecacuan, as at six o'clock.

21st.—Has passed a tolerable night, and feels better, bowels not having been once moved since the administration of the last dose of ipecacuan, which he retained an hour and a half, then vomiting three times. He feels nausea at present. Is perfectly composed, and free from pain or irritability. Pulse 120, full and soft; tongue furred, but moist.—Evening: No action of the bowels since morning; the draught was retained three hours; he then vomited once. To have, at bedtime, a draught composed of liquor acetate of ammonia, half an ounce; liquor acetate of morphia, thirty minims; tincture of matieo, and compound tincture of lavender, of each one drachm; peppermint-water, one ounce.

22d.—Marked improvement in every respect. After an interval of thirty-four hours his bowels have at last acted, during the night, once only; stool scanty, semi-consistent, feculent, and homogeneous, without a trace of blood or mucus. He is entirely free from pain or tenesmus, and perfectly comfortable in every way. Draught last ordered to be continued every six hours.

23d.—Improvement continues. No motion since last report. Pulse 100, jerking; tongue coated. Ordered, camphor mixture, one ounce; liquor acetate of ammonia, half an ounce; disulphate of cinchona, two grains; tincture of lavender, one drachm: to be taken every four hours. Chicken broth; brandy, half a gill.

24th.—One scanty, consistent, entirely feculent stool; pulse 90, soft; tongue cleaning. Ordered, infusion of gentian, two ounces; disulphate of cinchona, two grains; three times a day. Brandy, one gill.

25th.—Improvement maintained. No motion. Gentian draughts repeated.

26th.—Continues to get better; one natural evacuation. Tonic draughts continued. Broiled chicken.

27th.—Same report. He is very weak. Draughts continued. Ordinary diet, and brandy.

29th.—Convalescent. Gentian and cinchona draughts continued.

April 1st.—Same report. Draughts continued.

3d.—He is still rather weak.

4th.—A trace of mucus in the stools (three since last report), and there is slight tenesmus. Ordered, castor oil, two drachms; gentian and cinchona draughts continued.

5th.—No motion since last report, nor has he any inclination to stool. Ordered, castor oil, half an ounce; tonic draughts continued.

6th.—Bowels moved three times, after last dose of oil; stools natural. Draughts continued.

7th.—Some thick, yellow mucus only passed since last report. Castor oil, two drachms, immediately; a scruple of powder of calumbo three times a day.

8th.—Has passed three feculent stools, entirely free from mucus, since taking the oil. Calumba continued.

9th.—No motion since last report; has nearly recovered his strength. Castor oil, one drachm; calumba powders continued.

11th.—Discharged cured.

A more remarkable case than the above could hardly be. It is an unquestionable fact that this man's life was saved by ipecacuan, given in the doses it was, and by ipecacuan alone, for the opium only aids in enabling the ipecacuan to be retained. Moreover, I am convinced that, in the condition he was on the evening of the 20th March, by no other known means could he thus, as it were, have been snatched from the brink of the grave. Instead of dying, however, this soldier was at his duty, completely cured, in little more than three weeks from his admission, desperately ill, into hospital. It will, I think, be conceded, that this last case, if not those preceding it, ought to secure for the ipecacuan in large doses treatment at least a fair trial.

"Another and more certain benefit resulting from this treatment is the apparently entire obviation of chronic dysentery, with its many and protracted miseries. Who that has to contend with a wearisome and disheartening case of this kind will not hail with delight a remedy which enables him to effect a cure in the same number of days that formerly would have occupied weeks or months; a cure, moreover, so complete as to send his patient with a new lease of life, actually better after his illness than he was before!

"As regards the rationale of the action of ipecacuan in large doses, I will not venture on so debatable a point to express an opinion. That it is a very energetic tonic is sufficiently evident; equally certain that it is a most powerful styptic (this being the effect of its tonic property), and as such likely to be of great use in some active and in most passive hemorrhages, especially in those occasioned by exudation from mucous surfaces. In dysentery, at all events, the value of this medicine is incontestable. I believe the time may come when it will be considered as much a specific in this disease as bark is in ague, and sulphur in itch."

ART. 70.—On the Differential Diagnosis of Ascites and Ovarian Dropsy.

By Dr. ———.

(Medical Times and Gazette, June 6, 1858.)

There is one sign which hitherto we have never known to fail, but which is, we believe, as compared with its value, but little known. This sign is obtained by percussion of the lumbo-lateral region. If in a case of ascites, in which the distension is so great that the hydrostatic line of level in front is not so changed by posture—and it must be remembered that only in ovarian cases, in which

the cyst is so large as to simulate this extreme condition, ought any difficulty to occur—if, in such a case, the patient be made to sit up in bed, and the loins be percussed, it will be found that the note is the same (usually dull) on both sides. If an ovarian case, no matter how great the distension, be treated in the same way, one loin will be found to be clear, and the other quite dull. The explanation is obvious: in ascites, the air-containing coils of the gut float as far forward as their mesenteric attachment will permit, while in the case of an ovarian cyst, they are pushed over to the healthy side. It is not easy to conceive any condition of things, excepting entire exclusion of air from the whole tract of intestines, which could diminish the trustworthiness of this symptom. It indicates, also, with unfailing accuracy, on which side the ovarian cyst, if it exist, has originated.

ART. 71.—*On the use of Kamala (Rottlera Tinctoria) as a Vermifuge.*

By Dr. RAMSGILL, Physician to the Metropolitan Free Hospital.

Kamala has little smell or taste; it is insoluble in cold and nearly so in boiling water; but yields an admirable and effective tincture. It is this tincture which Dr. Ramsgill uses, as prepared by Messrs. Hambury, of Plough Court.

According to the author's experience thus far, the alcoholic preparation of kamala is more uniformly effective than oil of male-fern or than spirit of turpentine, and infinitely less disagreeable than either. In no case where a *taenia* was known to be present in the intestinal canal, evidenced by fragments occasionally passing away, has it failed to effect its expulsion; and in most cases where the head of the worm has been carefully looked for, it has been found.

CASE 1.—On March 3d, John F—, *æt.* 22, residing in St. George's-in-the-East, was admitted a patient of the Metropolitan Free Hospital, with tapeworm. He first observed that he passed fragments of them six years since. Has passed as much as eleven yards at once; very rarely passed a week without having seen fragments. Formerly was at sea, and lived for long periods on salt meat, both pork and beef; likes salt and vegetables. Has taken turpentine, which did good for a few weeks; objects to take it again. Ordered, tincture of kamala, two drachms; distilled water, four ounces. To be taken night and morning. To have three doses.

March 6th.—By some mistake the patient swallowed the tincture without water. Felt no result from the first or second dose, but vomited the third, at the same time three or four series of links some inches long passed away, including one tapering to a point (this he had been asked to look for). To repeat the three doses in water.

10th. The first dose caused purging; the second, violent diarrhoea and vomiting for forty-eight hours. No worm nor fragments passed. Has now eczema of the scrotum, which he insists has been caused by the medicine.

CASE 2.—Morris H—, *æt.* 63, was admitted a patient of the hospital on March 6th. He lives in Glasshouse-fields, Ratcliffe-highway, has had tapeworm five or six years, and has passed long pieces after taking turpentine. This drug has often cured him for six months, but never for a longer period. He is not fond of salt nor of vegetables; eats pork occasionally; suffers considerably from epigastric nervous sensations, faints, &c. Ordered tincture of kamala, two drachms and a half; water, one ounce: to be taken night and morning. After the second dose some "thousands of bits came away;" the third and last dose purged him very much, and made him feel sick, but he did not vomit. No head found, probably on account of carelessness in the search for it. The bowels continued irritable for some days, but no more fragments of *taenia* appeared.

CASE 3.—Mary P—, *æt.* 21, admitted March 6th. Had tapeworm two years; is very feeble; appetite voracious or absent; complains greatly of epigastric fainting; dislikes salt, scarcely ever eats it with food; always fond of pork, eats it frequently. Ordered tincture of kamala, two drachms; water, four ounces: to be taken night and morning. The physic operated six times; no pain, no vomiting; worm passed within twelve hours after taking the first dose; head found.

On the 17th she had not passed any further fragments, and observed that she felt better in health than she had done for years.

CASE 4.—Emma H——, æt. 24, resides at Stepney; admitted a patient of the hospital on March 6th. She first saw fragments of tænia in the evacuations three years ago, and has seen them occasionally ever since. Suffers frequently from fits of "retching, lasting four or five hours together," and is not by any means able to stop it. She attributes this to the presence of tænia. Has suffered from it about three years—i. e., since about the time she first discovered fragments of worm; likes salt, and often eats pork. Ordered tincture of kamala, two drachms; water, four ounces: to be taken night and morning for three times.

March 10th.—After taking the second dose a great number of fragments passed; none after the third; did not find the head, perhaps did not examine sufficiently closely. She had no pain, purging, nor vomiting, but felt sick, and suffered much for the two days when taking the medicine with headache. To have three three-drachm doses of the tincture as before.

17th.—The physic has made her violently sick, but it was not returned; no diarrhœa. She has not seen any more segments of the worm.

This patient has for the present disappeared, so that it cannot be determined whether the retching was caused by the tænia.

CASE 5.—A. L——, æt. 36, resides in Whitechapel. First saw that he passed portions of tapeworm three years ago; has suffered during this time with all sorts of nervous feelings; is "always in a twitter;" he is a member of the Jewish Church; they do not eat pork, he dislikes salt, and takes little vegetable with his dinner. Has taken turpentine three times; this drug punished him severely; he could not for a time pass urine. Has also taken the oil of male fern, after which he vomited greatly; he was much purged, and became delirious for seven or eight hours. He was ill for three weeks afterwards, in bed, and under treatment.

March 20th.—Tincture of kamala, two drachms; water, two ounces, night and morning (three doses).

23d.—Saw three or four joints after the second dose; no vomiting nor diarrhœa. On examination I find he has by mistake only taken one-drachm-and-a-half doses. To increase each draught to three drachms night and morning.

26th.—The first dose caused vomiting, but the medicine was not returned. After the lapse of half an hour, twelve yards of the worm, including the head, was passed. The second dose caused vomiting and diarrhœa, as did also the third, no further segments of worm passing.

(E) CONCERNING THE GENITO-URINARY SYSTEM.

ART. 72.—On *Amblyopia and Amaurosis in their relation with Bright's Disease*.
By Dr. A. WAGNER.

(*Virchow's Archiv*, t. xii., liv. 2 and 3, 1858.)

The connection of the amaurosis which may accompany Bright's disease with certain definite lesions of the retina has been pointed out by M. Türk. In 157 cases of this disease, during a period of four years, M. Wagner has met with eighteen cases in which this connection was very evident when recourse was had to the help of the ophthalmoscope. These cases are given in detail.

ART. 73.—*Alteration of vision in Bright's Disease*.
By Dr. LECORCHÉ

(*Archiv. Gén. de Méd.*, Aug. 1858.)

M. Lecorché has devoted his inaugural thesis to the elucidation of this subject, and his principal conclusions are these:—

1. Alterations of vision (amblyopia, amaurosis) are of frequent but not constant occurrence in Bright's disease. In seventeen cases, the author met with them in seven instances. 2. Youth, the female sex, pregnancy, or recent

childbirth, and the chronic form of the kidney-disease, predispose to the development of amblyopia. 3. There is no direct relation between this degree of alteration in the vision and the extent of kidney-disease, or the amount of albumen in the urine. 4. The existence of amblyopia is not of necessity a warrant for a dismal prognosis, nor is it necessarily a permanent condition. 5. In some cases there are no evident organic lesions in the eye; in others, these lesions may be rendered very evident by the ophthalmoscope or by examination after death. These lesions are passive or active congestion of the retina, or degeneration of a fatty character.

M. Lecorché relates three original cases, and collects others from the writings of MM. Landouzy, Forget, Avard, Dewarres, Wagner, and others.

ART. 74.—*The Temperature of Persons suffering from Diabetes.*

By Dr. LOMNITZ.

(*Henle und Pfeuffer's Zeitschrift*, 3 Reihe, Bd. ii. Ht. 3, 1858.)

These observations were made upon three patients, one a young man æt. 19, and two women aged respectively 30 and 36. They extended over twenty-one days consecutively. Every morning and evening M. Lomnitz took the temperature of the mouth and armpit, and noted at the same time the frequency of the pulse and respiration, and the quantity and density of the urine passed during the previous twenty-four hours. On comparing the mean temperature with the normal temperature as determined by M. Bärensprung, he found that in diabetes the temperature of the armpit had fallen 1.07° Reaumur, and that of the mouth 0.39° . He found, also, that this depression of temperature had no evident connection with the variations of the pulse.

ART. 75.—*On the Relation between Diabetes Mellitus and Carbuncle.*

By Dr. A. WAGNER, Physician to the Dantzic Hospital.

(*Archiv. für Path. Anat.*, Bd. iii. Heft. 4 and 5; and *Med.-Chir. Rev.*, July, 1858.)

The coincidence of inflammatory and gangrenous affections of the skin with melituria has been observed by Prout, Marchal de Calvi, Landouzy, Dr. Goolden, and others. Dr. Wagner inquires into the relation the two affections bear to one another, and arrives at the following conclusions, which he supports partly by the records of his own practice, partly by analyses of other writers:—

1. That inflammatory and gangrenous affections of the skin not unfrequently have been developed and have repeatedly occurred in persons who for a considerable time had labored under chronic melituria.

2. That sugar does not appear to occur in the urine of persons affected with the skin-diseases just mentioned, in whom diabetes does not exist.

3. That in rare cases of persons previously in perfect health, attacked by extensive carbuncular disease, which ran a tumultuous and fatal course, accompanied by septic symptoms, acute melituria has been observed.

In support of these views, Dr. Wagner brings forward an analysis of all the cases of inflammatory and gangrenous skin-affections which had occurred to him for fourteen months, amounting to fifty-two. In none of them was any sugar found in the urine. They were as follows:—

	Males.	Females.
Carbuncle	5	3
Furuncle	9	6
Erysipelas	8	14
Erysipelas phlegmonodes	2	5

Forty-eight of these recovered, four ended fatally.

Two interesting cases are given in detail, which bear out the writer's third argument, and in which saccharine urine appeared in the course of severe and fatal carbuncular disease, attacking gentlemen previously in perfect health, and exhibiting no sign of diabetes.

ART. 76.—*Treatment of Diabetes Mellitus.* By Dr. INMAN, of Liverpool.

(British Med. Journal, Sept. 18, 1858.)

Two patients referred to in this communication are described as laboring men, about forty years of age, ill for many months. The quantity of urine passed was at least twenty pints daily, the specific gravity 1045; the presence of sugar was ascertained by fermentation and other tests. Emaciation was considerable, and thirst great. Both had been under dispensary treatment before their admission. In adopting a plan of treatment, Dr. Inman was guided by the following considerations:—

1. The liver naturally produces sugar in a definite quantity. In diabetes there is an excess of sugar, and we may fairly infer that it comes from the liver. Opium has a decided effect in diminishing the bile-producing or secreting function of the liver, and it is reasonable to suppose that it will reduce the sugar-forming function. Experience has long told us that no single remedy in diabetes has been so efficacious in diminishing the quantity, &c., of urine passed, as opium. Opium, therefore, should be one ingredient in the treatment.

2. Again, Bernard has shown that the liver makes sugar, no matter what is the nature of the food employed. Dr. Budd has shown that some patients, at least, may be benefited by saccharine food. But these patients did not long for sugar; and they did enjoy their ordinary food; consequently the author neither restricted them to non-saccharine or non-amylaceous diet, or prescribed unusual quantities of sugar. They were to have the ordinary full diet of the hospital, but more in quantity if they chose, either of bread, meat, or potatoes.

3. Again, it seemed to be clear that in diabetes there was debility, implicating more or less the whole system; that there was danger of death by consumption; that the digestive powers, notwithstanding their apparent energy, must be impaired; at any rate, that opium was liable to disorder the stomach, and that it could be tolerated in larger quantity if combined with quinine.

The result of these considerations was the following prescription for a pill:—

Opium, one grain; quinine, two grains; to be taken every four hours. Full house diet, with porter daily.

The effect of this was soon apparent. The men began to improve rapidly and steadily; the urine diminished until it stood at ten pints only per day, with a specific gravity of 1035. Commensurately with this, their strength and spirits increased, and they gained in flesh considerably. The opium never affected the head except on one occasion, when the patient, hoping to expedite his recovery, took a double dose. The bowels were habitually regular. The plan of treatment was neither varied nor altered during their residence in the hospital. They remained under notice, the one about three months, the other for six weeks. Both left the house of their own accord, as they considered themselves sufficiently cured, and competent to do their ordinary work. Dr. Inman has seen one since he went out, and found that he continued strong, and, as he thought, well.

It is not imagined that these two cases are sufficient to upset our older notions of the correct treatment of diabetes. They are offered as a small contribution to our general therapeutical stores.

Dr. Inman mentions, as a curious fact, that one of his unsuccessful cases found that he received more benefit from a diet of raw beef than from any other thing, dietetic or medicinal, which he had taken; and that every new medicine did him good for about two days.

ART. 77.—*Sugar in Diabetes Mellitus.* By Dr. JOHN SLONE, House-Surgeon to the Leicester Infirmary.

(British Med. Journal, May 29, 1858.)

In the first of these three cases the treatment was carried out for nine weeks, and the results were, an increase of three quarts in the daily quantity of urine, an increase of sugar, from fifty-six to eighty grains, in each fluid ounce, and an increase in weight of seven pounds. In the second case, which was treated

for one month, the daily quantity of urine increased from eight to fourteen pints, the urine contained one grain more sugar in each fluid ounce, and the patient lost two and a half pounds in weight. In the third case the treatment was carried out for six weeks, and the patient lost four pounds in weight; the daily quantity of urine increasing by one pint, and each ounce containing an addition of four grains of sugar. Dr. Slone, who has looked over the other cases in which this treatment has been tried, and finds ten, and tells us, that in six the results of the treatment were injurious, and in four beneficial. He also tells us that the supply of drinks was limited (as M. Piorry says it ought to be) where the result was satisfactory.

CASE I.—Nov. 22d. Elizabeth Lawrence, æt. 23, residing at Earl's Shilton, was admitted under the care of Mr. Paget on October 20th. She is a frame-work-knitter, of healthy parentage, and has suffered no privations. She has now a sister in the infirmary with diabetes mellitus. She is very temperate. She began to suffer from amenorrhœa three years ago; shortly afterwards her vision began to fail, and she thinks that for about the last year she has been passing an inordinate quantity of urine. She appears to be a delicate, badly developed girl, and seems younger than she really is. She has no pain, sleeps well, and feels very feeble. There is double cataract. The tongue is clean and moist; she has only eight teeth; the others "rotted away" about four years ago. The gums are congested, but do not bleed. She has much thirst; her appetite is extremely good; the bowels are regular without medicine. The lungs seem healthy. Pulse 72, rather small. There is no cardiac murmur. Not the least œdema of the feet or ankles is observed. The skin is dry and harsh. Her temper has been more irritable than formerly for the last six months. Hepatic dulness extended four inches and a half in a vertical line with the right nipple.

Since admission she has been taking five grains of citrate of iron three times a day, and has had the full diet of the infirmary, with a pint of beer and a mutton chop in addition. She passed during the last twenty-four hours five pints of urine. I examined a specimen passed five hours. It was clear, like water, of acid reaction, of specific gravity 1040, and contained no albumen; chlorides were abundant. Each fluid ounce of this urine contained fifty-six grains of sugar, as calculated by Garrod's glucometer. She was ordered to take half a pound of treacle daily; no other change being made in her medicine or diet.

Dec. 15th.—During the last twenty-four hours she passed nine pints and a half of urine, nearly double the quantity she evacuated before she began to use the treacle. Each fluid ounce contained fifty-six grains of sugar, and the specific gravity was 1043. She had, however, gained three pounds in weight.

Jan. 28th, 1858.—She passed eleven pints of urine during the last twenty-four hours. The specific gravity was 1046; and each fluid ounce contained eighty grains of sugar. She had since last report gained four pounds and a half in weight. She omitted the treacle and the medicine also. She was ordered to take two teaspoonfuls of cod-liver oil and twenty-five minims of tincture of muriate of iron three times a day, and to have a pint of milk daily, in addition to the diet mentioned in my first report.

Feb. 28th.—She passed four quarts of urine in twenty-four hours. The specific gravity of some passed this morning is 1045; each ounce contains seventy-seven grains of sugar. There has been no change in weight since last report. Perhaps I should mention that, ten days ago, I examined a specimen of her urine, the specific gravity of which was 1042, and each fluid ounce contained sixty-three grains of sugar. She was ordered to omit her present diet, and to take instead half a pound of bran-biscuit prepared in accordance with Mr. Camplin's directions, tea without sugar, one pint of milk, three ounces of wine, a mutton chop, and one pint of beef-tea. No other article of food was allowed. Her medicine was continued as before.

March 2d.—During the last twenty-four hours she has passed five pints of urine. Some that she evacuated this morning had a specific gravity of 1046, and contained fifty-five grains of sugar in the fluid ounce.

April 9th.—She has continued to improve steadily and gradually since last

report. She passed only three pints of urine in the last twenty-four hours, and each fluid ounce contains forty grains of sugar; specific gravity 1046.

CASE 2.—Nov. 24th. Ann Coleman, æt. 25, residing at Great Glenn, was admitted under the care of Dr. Crane, on September 15th. She is a servant of healthy parentage, and of temperate habits. She suffered some privations when a child, but not lately. Four years ago she had an attack of typhus fever, from which she did not completely recover for twelve months. She was five months in bed, and for the remaining seven months was very weak. About twelve months ago she began to suffer from her present illness, and has since been gradually becoming worse. She is small of stature, and imperfectly developed, and appears to be much older than she really is. The cheeks are red; the veins of the face are unusually visible. She has no pain; sleeps badly; feels very weak; has observed no change in her temper: the special senses are unimpaired. The tongue is clean and moist; she has a good set of teeth. She has had no inordinate thirst for the last three weeks; previously, since her seizure, she had been very thirsty. Her appetite is very good—abnormally so. The bowels are regular. There is no cough; the lungs seem to be healthy. Pulse 72, small, feeble. There is no cardiac murmur. The skin is dry and harsh. There is no œdema of the feet or ankles. Hepatic dulness extends three inches and a quarter in a vertical line with the right nipple. She weighs five stone and five pounds and a half. The urine is clear, like water, of acid reaction, and of specific gravity 1040; it contains no albumen; chlorides are present. The quantity of sugar, calculated by Garrod's glucometer, is found to be seventy-six grains in each fluid ounce. She passed four quarts of urine in the last twenty-four hours. She is taking daily half a pound of common biscuit, two eggs, one pint of milk, three ounces of wine, one pint of beef-tea, half a pound of light pudding, and the common diet of the infirmary. She has been treated with baths every other day at a temperature of 96° Fahr., and with five grains of compound soap pill three times a day. She believes that she has derived benefit from this plan. She was directed to continue her present treatment and diet, and to take in addition half a pound of treacle daily. After three days the treacle was discontinued, as it induced nausea, and she said it made her feel very thirsty. She was ordered to take a half a pound of honey instead.

Dec. 8th.—The biscuit was omitted, and half a pound of bread substituted for it. She is now beginning to dislike the honey; but she was fond of it at first.

Dec. 20th.—During the last twenty-four hours she passed seven quarts of urine, being three quarts more than she voided in the same period before she began the saccharine plan of treatment. The specific gravity of the urine was 1043, and each fluid ounce contained seventy-seven grains of sugar. She has lost two pounds and a half in weight since the date of my first report, and feels much weaker since then, and is much more thirsty. She was ordered to omit the honey.

Dec. 25th.—The specific gravity of the urine was 1042; each ounce contained forty-five grains of sugar. She now began to complain of some cough. She was ordered to omit the baths and the opium, and to take two teaspoonfuls of cod-liver oil three times a day, in a dose of common cough mixture.

Feb. 20th, 1858.—During the last twenty-four hours she passed five quarts of urine, of specific gravity 1040; each ounce contains forty-eight grains of sugar. She is now very thirsty, and is gradually becoming weaker. She was afterwards ordered the bran biscuit as in the preceding case, but after two days she refused to take it. She was therefore discharged.

CASE 3.—Nov. 28th, 1857. Hannah Lawrence, æt. 14, residing at Earl's Shilton, was admitted under the care of Dr. Shaw on November 10th. She is a servant; has suffered no privations; is temperate; and has had no previous illness. She is sister to Elizabeth Lawrence, who is also suffering from glucosuria, and who is at present in this infirmary.

About three months ago she began to pass more urine than normal, and has since been gradually getting worse. She cannot account for her illness. She appears to be well grown, but is slender. She complains of pain in the left

hypochondrium, at the margin of the ribs, in a line with the left nipple. It is sometimes present for an hour, and may be absent for two days; but these times are liable to vary much. She feels weak. The special senses are not impaired. The gums are not spongy; the teeth are good, two only being carious. The tongue is clean and moist. She has much thirst; her appetite is good—inordinately so as compared to the state of health. The bowels are regular without aperient medicine. She has had a cough for the last week; no lesion of lungs can be detected on examination; she raises no phlegm. Pulse 104, of moderate fullness and force; there is no cardiac murmur. The skin is dry and harsh to the touch. She had œdema of the feet for a week previously to admission; this has since disappeared. Hepatic dulness extends from an inch below the nipple downwards three inches and a quarter. She has never menstruated. Since admission she has taken Griffiths' mixture three times a day. She has the full diet of the infirmary, with half a pound of bread and three ounces of wine in addition. She weighs five stone and four pounds. During the last twenty-four hours she has passed nine pints of urine, which contains sixty-four grains of sugar in each fluid ounce, as calculated by Garrod's glucometer. The reaction of the urine is acid; the specific gravity 1040; some opacity, produced by heat, disappears on the addition of nitric acid; the chlorides are scanty. She was ordered to take half a pound of treacle daily, no other change being made in her medicine or diet.

Dec. 20th.—She passed during the last twenty-four hours the same quantity of urine as at the date of the last report. She has gained one pound in her weight. The specific gravity of the urine is 1045, and each ounce contains sixty grains of sugar.

Jan. 16th, 1858.—She has lost four pounds in weight since last report. The quantity of urine passed in twenty-four hours is five quarts; each ounce contains seventy grains of sugar; specific gravity 1035. She has become much weaker since admission. She was discharged at her own request. She died on February 17th, at her home in the country.

ART. 78.—*On the treatment of Diabetes by sugar.*
By Dr. WM. BUDD, Physician to the Bristol Infirmary.

(*Medical Times and Gazette*, May 22, 1858.)

This is the second case in which, with apparent benefit, Dr. Wm. Budd has tried this mode of treatment (*vide* 'Abstract,' XXVII, p. 105). The narrative of the case itself is prefaced by some critical remarks upon a paper by Dr. Bence Jones, which was noticed along with Dr. Wm. Budd's first case.

CASE.—Elizabeth H—; a widow, æt. 53, a diminutive person, and already for a considerable time the subject of diabetes, was admitted on the 11th of March, 1858, into ward 2 of the Bristol Royal Infirmary, where she still remains under treatment.

The symptoms which first arrested her own attention were frequent calls to make water, with great increase in the quantity passed, which amounted to several quarts daily; insatiable thirst, progressive weakness, and loss of flesh; and severe pruritus of the external parts. These complaints had come on rather suddenly about fifteen months before admission, in immediate sequel to severe mental anxiety. During the interval, she had been for some time an out-patient of the infirmary, and subsequently, and for a period of rather more than two months, a patient at the Clifton Dispensary. She had never before, within her recollection, had any illness requiring medical attendance.

When admitted, her debility and emaciation were extreme. The degree of wasting may be estimated by the fact, that when placed in the weighing-machine, she was found to weigh only sixty-five pounds. She was unable to stand, or even sit up in bed, without being supported. The skin was peculiarly harsh and dry; the pulse 100. On the day after her admission, and for many subsequent days, the tongue was dry and brown. Her nights were much disturbed by calls to make water, and her thirst was very great. There was a hectic flush on the cheek, and she was much harassed by frequent dry cough

and by pains of the chest. Although there were no physical signs of lung-deposit, my impression was that she was most probably the subject of tubercle.

She had reached, in fact, what Dr. Prout describes as "the last and usually the briefest" stage of diabetes.

On the day after her admission, she was placed for five days on the ordinary (technically "the middle") diet of the house. No medicine was given.

During these five days she passed six pints of urine daily, of sp. gr. 1040°.

On March 17th she was ordered to take ten ounces of the best white sugar daily, and was put on the following dietary:—

Bread (common), 12 ounces; meat, 12 ounces; butter, 3 ounces; greens, 8 ounces; beef-tea, 1 pint; sherry, 4 ounces; to all which two eggs were added on March 22d. An ounce of cod-liver oil, which she took daily from the day after her admission until April 16th, may also, I presume, be fitly included in this list.

On March 18th, twenty-four hours after the adoption of this scheme, there was an increase of three pints in the quantity of urine passed, which now amounted to nine pints, of sp. gr. 1040°. Her thirst had also increased, and she was weaker. The pulse had risen to 116. In short, she was in all respects worse.

On the 19th, under the same treatment, the quantity of urine fell to eight pints, and the specific gravity to 1037°.

As, with the exception of the sugar, the new dietary differed from that for which it was substituted chiefly in containing much less amylaceous matter, it was tolerably clear that the sudden aggravation of the diabetic symptoms was due to the administration of the sugar.

Under the idea that the fault might be, not in the principle, but in the application of it, I did not withdraw the sugar, but merely reduced its quantity from ten ounces to five.

As the patient complained much of inability to sleep, I, at the same time, ordered five grains of compound soap pill to be taken at night. I may add, that as this prescription seemed to answer, it was continued for the next ten days, when it was left off on account of constipation.

The opium probably had something to do with the sudden improvement which now occurred in the quality of the urine.

Be this as it may, the quantity of this secretion fell on the following day to five pints, its specific gravity continuing at 1037°. On the next succeeding day five pints were again passed, of specific gravity 1036°.

Between this date and the 30th March, the urine fluctuated in quantity between five and a half and six pints, and in specific gravity between 1037° and 1040°.

The only changes worthy of note in the patient herself were, that the tongue had become moist, and that she was somewhat stronger. She was able to sit up in bed, and could stand for a few moments without support. She relished the sugar, and it appeared to agree with her. Nevertheless, on being put in the weighing-machine on the 30th March, she weighed only sixty-four pounds; so that in sixteen days she had lost one pound.

As from the history she gave of herself there was reason to believe that her loss of flesh for some time prior to her admission was more rapid than this, the true interpretation of this fact probably was, that some check was already being put to her downward progress.

In the next fortnight she steadily improved. On the 13th April, this note occurs in the journal of her case:—

"Weighed yesterday 69½ lbs. Pulse 76; tongue clean and moist; skin soft and moist, having entirely lost its original harshness; gains strength daily; appetite good."

She was now sitting up for an hour or two every day. The cough and other chest symptoms had entirely ceased. The only change made in the treatment during this last interval was, that on the 30th of March the sugar was increased to six ounces daily, and on the 3d of April a quinine mixture was ordered to be taken three times a day. Half a pint of bitter beer was

also substituted for the sherry. The urine meanwhile continued pretty steadily at six pints, its specific gravity ranging from 1035° to 1040°.

On the 20th—that is, seven days later—there is this further note: "Weight, 72 lbs.; better in every respect; remains up six hours every day, and walks about."

In the week following she scarcely held her ground. In the early part of the week some relatives came to visit her, with whom she was on bad terms. A violent altercation ensued, and she was much agitated during the night. On the day following, the urine had increased more than a pint, and the specific gravity had risen several degrees. She continued to be very poorly for some days, and on the 27th she weighed only 71½ lbs., being half a pound less than the week before. Annoyances of the same kind have occurred to her several times since, and have always been followed by a similar change for the worse.

On the 24th the quinine was left off, and twenty minims of the dilute nitric and muriatic acids, in equal parts, were given three times a day instead. This last medicine she still continues to take.

On the 27th of April the sugar was increased to eight ounces—that is to say, to within two ounces of the quantity first prescribed. It is deeply worthy of remark, that without any other change being made, the urine on the day following, instead of increasing, showed a large diminution. On the 25th, 26th, and 27th, she passed six pints on each day, the respective specific gravities being 1035°, 1037°, 1034°. On the 28th of April she passed only five pints, of specific gravity 1034°. On the 29th, four and a half pints, of specific gravity 1035°; and on the 30th, again four and a half pints, of specific gravity 1034°.

On the 4th of May, her weight had further increased to seventy-three pounds—a point at which she still remains. Beside this, she is in all respects very much better. The tongue is clean and moist, the appetite is good, the bowels are regular, and the thirst is moderate. She is generally up the greater part of the day, and on fine days often passes much time in the infirmary garden. On the 3d of May, after having spent a good part of the morning in that way, she went out, on foot, to visit a sick relative, and walked more than half a mile without fatigue.

During the last ten days the urine has only once reached six pints, the average quantity for the other nine days being somewhat short of four pints and a half, and the average specific gravity for the whole period 1034°.

One change has occurred in the patient while under this treatment, which deserves to be specially mentioned, on account of its physiological interest. When she came into the hospital, she was almost as dark in complexion as persons affected with bronzed skin. As the treatment proceeded, she became visibly lighter, week by week, to such a point that it would be difficult to recognize her now as the same person.

The speedy subsidence of the chest symptoms equally deserves to be brought into prominent notice. We might, no doubt, attribute this to the opium employed. I would observe, however, that a precisely similar result occurred in the case of Snailum, to whom no opium was given. I withhold all comment from these facts at present, beyond suggesting that they may both very possibly be eventually found to possess an interest extending far beyond the present topic.

"In summing up the results detailed in the preceding narrative, the leading facts appear to be these:—

"1. In the interval between the 30th March and the 4th May the patient gained nine pounds (a gain representing one-seventh of her whole weight), with a proportionate recovery of health and strength.

"2. During the same period, she was taking from five to eight ounces of sugar daily.

"And 3. Notwithstanding this large daily consumption of sugar, instead of an increase, there was an abatement of the proper diabetic symptoms.

"In connection with these results, I shall confine myself at present to two remarks.

"The first is the very obvious one, that whatever may happen in other cases, or whatever may be the ulterior issue of this one, these facts will abide.

"The second is, that as it is impossible to suppose the sugar to have been without effect, the results here detailed must have been obtained either in consequence of its administration or in spite of it. If in consequence, then the facts are of extreme importance; but if in spite of it, they are scarcely less remarkable in the extreme opposition they offer to all we have hitherto been taught on the subject.

"In regard to this point, Dr. Prout, who is confessedly one of the highest authorities in these matters, uses these remarkable expressions: 'Every variety of the saccharine principle in its crystalline form is absolutely inadmissible as an article of diet in diabetes. This rule excludes, therefore, at once all fruits, whether subacid or sweet, as well as every compound, natural or artificial, into which sugar enters. The practical importance of this rule is so great, that I am doubtful, if it be neglected, whether good can be obtained from any plan of treatment.'"

"But here we have a diabetic patient eating from five to eight ounces of sugar daily, and not only rallying from a stage of the disease which Dr. Prout describes as being all but irretrievable, but adding in little more than a month a full seventh part to her weight, and becoming the while (what perhaps is most extraordinary of all) gradually less diabetic.

"Antagonism more extreme than this it is impossible to conceive.

"And there cannot, I think, be a more complete vindication than is to be found in it of the course I have taken in laying these facts in a simple manner before the public.

"I may add, in conclusion, that in publishing them I do so in the full confidence that they will be regarded by the profession generally as not without interest, in spite of attempts to disparage them, from whatever quarter they may come. Of this, at any rate, I feel very sure, and that is, that all such attempts will fail of their object when they come before us, seasoned by jests on homœopathy, having neither point nor good taste to recommend them.

"P. S.—Since the foregoing notes were sent to press, this patient has continued steadily to improve. Her weight now (May 18th) is 75 lbs. During the last five days, her urine has varied in quantity from 4 pints to 4½ pints; in specific gravity from 1034° to 1037°. She is still taking eight ounces of sugar."

ART. 79.—*Inversion of the body for the symptoms produced by the passage of a Renal Calculus.* By Dr. SIMPSON, Professor of Midwifery in the University of Edinburgh.

(*Edinburgh Medical Journal*, July, 1858.)

At a recent meeting of the Medical and Chirurgical Society of Edinburgh, Dr. Simpson exhibited a small oblong renal calculus, from a patient who had passed such concretions at different times, and always suffered terribly during their transit from the kidney to the bladder. This patient had been now twice relieved from the agonizing symptoms accompanying the passage of the calculus by inversion of the body. Professor Simpson had subjected her to this treatment in consequence of his belief that the passing calculus, falling down into, and becoming impacted in the ureter, acted at its point of arrestment as a pealve, and by its accumulating the urine above, or in the pelvis of the kidney and higher portion of the ureter, led to the accompanying distress by the morbid distension of these portions of the urinary ducts. When the body was inverted, and the affected side manipulated, the calculus probably fell backward, and consequently upwards, by its own gravity. At all events, whatever be the explanation, the practice in this and in one other case had immediately relieved the patient. He had seen partial relief from changed position in one case also of gall-stones. Position was a more important therapeutical agent than was generally supposed, not only in medicine, but also in surgery and therapeutics. Several years ago—and shortly after the famous case of Mr. Brunel—Dr. Simp-

* 'Stomach and Renal Diseases,' by Dr. Prout, p. 39, 1848.

son saw, with Dr. Paterson and Dr. James Duncan, a case in which a shilling passed into the windpipe, and where upon inversion of the patient the shilling fell back into his mouth, thus saving the patient from the operation of tracheotomy. Dr. Duncan had published a full account of the case. In prolapsus of the umbilical cord in labor, the mere gravity of the cord in the usual supine position of the patient was no doubt one great cause of the difficulty of retaining it in utero, above the head or presenting part of the child, when once returned. But some late cases and observations proved that the return and retention of the cord could be affected with comparative facility, if the aid of position was called in, and the patient was placed upon her face, or upon her hands and knees, till the presenting part filled the brim of the pelvis; for in this prone position the cord gravitated towards the fundus uteri, instead of towards the os.

(F) CONCERNING THE CUTANEOUS SYSTEM.

ART. 80.—*On a variety of Pellagra peculiar to the Insane.* By Dr. BILLOD.

(*Archiv. Gén. de Méd.*, March, April, May, June, 1858.)

M. Billod bases this elaborate memoir upon fifty-six cases. Up to the present time it has been the habit to regard this affection as producing at a certain period of its course a form of delirium which has been regarded by some writers as of a special character. In these cases, the mental symptoms take the initiative, and are regarded by M. Billod as the predisposing cause of the pellagra. We have some difficulty in understanding, however, that this should be an important cause of difference, for there can surely be no reason for supposing that insane persons are exempt from this affection; and if not exempt, then it follows that in them the mental symptoms will precede the others. These cases all occurred in the Asylum of Sainte-Gemmes, in persons who had been fed upon good wheaten bread, and consequently the affection cannot be ascribed to the use of maize. In a word, we do not think that this long memoir sheds much light upon the pathology of pellagra.

ART. 81.—*Ecthyma Simplex on the Arms of Veterinarians from contact with the Vagina of a Cow.* By Mr. JOHN GAMGEE.

(*Edin. Vet. Review*, July, 1858, and *Medico-Chir. Review*, Oct., 1858.)

In the course of the protracted labor of a cow, Mr. Gamgee, Mr. Sarginson, a student of veterinary surgery, and a dairyman, had occasion to introduce their arms into the vagina of the animal, with a view to extracting the calf. All suffered from the appearance of a painful pustular eruption, which was particularly severe in the case of Mr. Gamgee, who describes it thus: on the evening of the day on which the ineffectual attempts were made to deliver the cow, he felt a strong itching sensation on the right arm. "My left," he says, "was not altogether exempt; and on looking carefully, I found that the skin was the seat of a diffuse rash. Next morning the redness had augmented on both arms, but chiefly on the right, and the pruriency was replaced by pain. On the Tuesday evening, an abundance of small circumscribed pimples had formed, which suppurated on the Wednesday. By the afternoon of the 25th they were well-formed pustules. The pustules were large, distinct, and surrounded by a red areola. Both arms were painful, the axillary glands slightly swollen, and I suffered somewhat in health. On the right the pustules were very numerous, exceeding one hundred, but less so on the left." A lotion of diacetate of lead and opium relieved the pain, "but some of the pustules attained the size of a large pea; others became incrustated with a brown scaly scab, and others, on bursting, left behind a cicatrizing sore. I was tormented for six weeks, when the only indication of the pre-existing eruption was the brown appearance of the skin where the pustules had existed." Some weeks later a carbuncle formed on the inside of the right arm, just above the elbow, which healed slowly. The description is accompanied by an excellent colored plate,

the original of which was by Mr. Cruickshank. Mr. Gamgee collects cases from various sources, showing that the occurrence of the pustular eruption under similar circumstances is not unusual, and he also quotes an instance that has been reported by Dr. Murphy, proving that similar contact with the human female may produce analogous results.

Mr. Gamgee regards the poison capable of producing such effects as of a distinct class, resulting from an exhausting process, both mental and constitutional; he compares it to the poison of puerperal fever or of dissection wounds. For his arguments we must refer to the paper itself.

ART. 82.—*Carate, a non-classified Disease of the Skin.*

By Dr. G. VAN ARCKEN.

(*American Medical Monthly*, April, 1858.)

The name of this disease, of which the author has failed to find any description in dermatological works, is derived from *cara*, the Spanish for *face*, and *ate*, the Indian for *look*—the word, according to Dr. Van Arcken, meaning, "Look at his face." It occurs in New Granada and the northern parts of South America, and presents three varieties—the blue, the white, and the rose-colored. The *blue* is the mildest, attacking persons of fifteen to twenty-five years of age, and consisting in the appearance of blue, round, or oval spots on the face. The spots coalesce, and extend down the neck on to the chest, where the ribs are often so distinctly marked as to cause the patient to resemble a zebra. The hands are a favorite seat of the disease, and again, the lower end of the tibia. It sometimes appears on the glans penis; but the female organs of generation remain free. The *white* variety rarely occurs in the male; it is commonly accompanied by diseases of the ovaries and uterus. The color is of a dead chalky-white, and attacks people from thirty to forty years. The *rose-colored* variety is the worst kind, and frequently follows the white, in which case there appears on the chalky spots of the latter some very minute red spots, which gradually enlarge, until the whole assumes a pale red color. Those affected with this disease are mostly Sambos, Mulattoes, and others of a dark complexion. It always commences on the hands, extends from them to the face and neck, and then down over the abdomen. It attacks both sexes equally. Dr. Van Arcken attributes the disease to a combination of such influences as filth, exposure, syphilis, and insufficient and unwholesome food. Syphilis prevails so extensively, that scarcely one in a thousand inhabitants is free from it. It seems, therefore, to be a necessary complication of every disease occurring in those parts. *Carate* is regarded as incurable by the native practitioners; Dr. Van Arcken has found alterative mercurial treatment, iodides, and arsenic, successful remedies. The blue variety he cures in about eight weeks; the other two forms require a longer period; "but the complete cases, whether they be congenital or contracted afterwards, are better left alone." *Carate* is never fatal by itself.

ART. 83.—*On a peculiar Discoloration of the Skin in Females.*

By Dr. BANKS, Physician to the Whitworth and Hardwicke Hospitals.

(*Dublin Quarterly Journal of Medicine*, May, 1858.)

This paper gives a resumé of the reports of all the cases hitherto recorded in which this strange discoloration of the skin was noticed, and relates another case which has fallen under the author's own notice.

CASE.—An unmarried female, æt. 23, was admitted into the Richmond Lunatic Asylum on the 17th of September, 1853. Her history may be briefly stated: She is rather of a strong build, with dark eyes and hair, her face large, and without much expression. She is the daughter of a fisherman, and resided at the Skerries, a village on the coast, a few miles north of Dublin. She was engaged to be married to a young man who was hereditarily predisposed to insanity, and who committed suicide by hanging himself shortly before the time fixed for their marriage. She went to her lover's cottage, and, as she tells the story herself, his mother sent her into the room in which he was suspended;

she knew something dreadful had happened, but did not know exactly what it was until, on rushing into the chamber, she struck suddenly and violently against his lifeless body. It appears that the fearful shock thus experienced had the effect of rapidly overturning her reason; she became maniacal, and the insanity assumed a suicidal propensity, her chief aim and object being to follow the example set her by her unfortunate lover. Having made repeated attempts at self-destruction, she was placed in the Richmond Penitentiary in the July preceding the date of her admission into the asylum. Soon after she came into the asylum, under the care of Dr. Mollan, she was attacked with erysipelas of the face, from which, however, she recovered in a few days. Her state, when first seen by Dr. Mollan, is reported to have been the following: She is restless generally, but at times sits quietly working with the needle, and talking to herself. She is most anxious to be permitted to go to a wood in the neighborhood of her home, where she might dwell far from the haunts of man, surrounded by leafy trees, and listening to the songs of birds. On more than one occasion she became much excited, and used almost poetic language in giving utterance to her feelings. This, it may be observed, was the more strange, as she had received no education beyond what usually falls to the lot of persons of her rank in life. She evinces great anxiety to impress on all who come near her that she had not been sent to prison for any disgraceful crime, but avoids the subject of the real cause of her confinement. Her nights are disturbed and often almost sleepless, and she has several times endeavored to cut herself with a pair of scissors. For the first two months there appeared to be little change in her mental state; the disposition to self-destruction continued undiminished, frequent attempts having been made to swallow pieces of glass, and to dash her head against the wall. In general she is engaged talking to herself, wrapt up in her own thoughts, and utterly regardless of all that is passing around her. After the lapse of some time she became more composed, generally melancholy, but occasionally almost cheerful. The catamenia have been irregular; the other functions have generally been performed in a healthy manner. For upwards of two years after her admission her state underwent little or no change. She was sometimes for three or four days excited, and then subsided into a quiescent condition.

Dr. Mollan, the senior physician of the asylum, who is at present at Cannes, has kindly favored me with a history of this case during the period she was under his care. He informs me that after several months of amenorrhœa she became the subject of periodical hæmoptysis, which was evidently vicarious of the menstrual flux. The hæmorrhage was generally attended with considerable excitement, often with great distension of the abdomen, and retention of urine. Dr. Mollan has frequently succeeded in preventing the attacks by leeching the groins, and by the use of the hip-bath two or three days before the expected period; he has, moreover, tried a great variety of treatment, including emmenagogues of all kinds, which have been administered without effect. In a communication which I have lately received from him, he suggests that a trial should be made of galvanism, the current being passed through the ovaries and uterus. From a desire to watch the progress of the case for a short time, uninfluenced by treatment of any kind, I have hitherto abstained from putting into practice the suggestion of my friend and colleague, Dr. Mollan, but having now satisfied myself, I shall give the galvanism a full and fair trial.

On first seeing this young woman my attention was attracted by a remarkable discoloration around the eyes, but chiefly beneath and extending to the side of the nose; the appearance exactly resembles what one would imagine to have been produced by painting the part with Indian ink, or, perhaps, rather with Prussian blue. The discoloration around the eyes has existed since the period of the cessation of the catamenia, but it becomes of a more vivid hue during the continuance of the periodical hæmoptysis. The ordinary duration of the vicarious hæmorrhage from the bronchial tubes is from three to four days, and the quantity of blood lost is about what, in the healthy state of the system, might be expected to flow from the uterus. Shortly before the appearance of the hæmoptysis she grows restless and very much agitated; and all the time there is constipation, with a great amount of flatulent distension of the

abdomen. Retention of urine also occurs, and it becomes frequently necessary to employ an instrument for its removal. The tongue becomes heavily loaded; and there is repeated and distressing retching, but seldom actual vomiting. During the retching it is observed that the discoloration around the eyes invariably becomes darker.

She speaks wildly and incoherently upon various subjects, but she ever reverts to the all-absorbing and dominant idea which has taken such painful possession of her mind. At these times she has often spoken to me of her lost lover, of his sad end, and of the shock it was to her, and how it suddenly bereft her of reason. She speaks with horror of his having died by his own hand, and of his having thus forfeited salvation; she also mourns over the disgrace of his not being buried in consecrated ground. She blames herself for not having married him, for she thinks he might have been saved. Her lamentations forcibly remind the listener of Bürger's ballad of Leonore. She is at all times most sensitive upon the subject of the blue discoloration of her skin, particularly when she is much excited; but even in the intervals she dislikes being observed, and I had some difficulty in persuading her to permit an artist to take her likeness. Once she said to me that she would rather her eyes were sightless than that she had the blue stains.

In addition to the interest connected with any case presenting the phenomenon under consideration, there is one peculiarity connected with the last, which renders it more than usually so, viz., the fact of the young woman laboring under mental alienation. The existence, also, of vicarious hemorrhage, of meteorismus, and of retention of urine, are worthy of especial notice.

ART. 84.—*A scarlet eruption caused by Hyoscyamus Niger.* By Dr. ROBERT CRAIK, Demonstrator of Anatomy in the University of McGill College.

(*Montreal Medical Chronicle*, Aug., 1858.)

The following case, which would seem to be unique, is of much interest, as showing that hyoscyamus has the same power as belladonna and stramonium of producing a rash like scarlatina.

CASE.—In July, 1857, I was called in great haste to see a child, two and a half years of age, who had swallowed some herbs which had been taken from the yard of the Montreal General Hospital. The father of the little girl described her as being "out of her senses," and very much excited. Having observed a number of plants of hyoscyamus growing in the hospital yard, I suspected the nature of the poison at once. I sent the father home with a ten-grain dose of sulphate of zinc, with directions to administer it immediately on his arrival. I followed in about ten minutes, and found that the child had vomited slightly, the vomited matters consisting entirely of hyoscyamus seeds and capsules. The plant from which they had been taken was shown me, and proved to be a large one, not quite ripe, and having the whole of the capsules stripped from the upper part and probably swallowed by the child, so that nearly an ounce of capsules and seeds must have been taken.

The symptoms were so peculiar and so well marked, that poisoning by some one of the solanaceæ might have been diagnosed without any other evidence. There was the flushed and excited countenance, the restless and violent tossing, amounting almost to convulsions, the momentary listening to imaginary sounds, and the eager clutching at visionary phantoms; while the brilliant eye, widely dilated pupil, hurried pulse, and labored respiration, filled up the pitiful but interesting picture.

One other symptom I must not omit, for it was among the most marked of all, and certainly not the least interesting. It was a bright scarlet redness of the whole surface, exactly resembling that of scarlatina. It was not a mere flushing of the surface, produced by the unusual exertion, but a well-defined papillary eruption, disappearing on firm pressure, but returning immediately when the pressure was removed. The mucous membrane partook to some extent of the same appearance as in scarlatina, though the strawberry tongue was of course not so well marked.

Another dose of sulphate of zinc having been administered without satisfac-

torily emptying the stomach, a teaspoonful of mustard was given, followed by copious draughts of warm water, which soon had the desired effect, very large quantities of the poisonous substances being evacuated. After recommending strong green tea as a drink, and applying cold to the head, I left her, promising to call again in two hours.

On my return I found the delirium and other symptoms still active, though not so violent as before, with occasional intervals of drowsiness. The eruption and the ocular delusions were as vivid as before.

I continued to visit her at intervals of a few hours during the night and following day, for the purpose of watching the decadence of the eruption, and I found that it, together with the ocular spectra, continued for about twelve hours from the time of taking the poison. Both then ceased gradually, and the child sank into a troubled sleep, interrupted by startings, twitchings of the muscles, &c., which did not entirely cease for upwards of twenty-four hours. The dilatation of the pupil continued for several days.

I watched the child carefully for some time, for the purpose of noting whether any attempt at desquamation would take place. On the fourth day numerous vesicles appeared on various parts of the body, resembling those of varicella. After remaining out for about two days they dried up, leaving scales, which peeled off along with portions of the surrounding cuticle. The thick epidermis of the hands and feet, however, showed no sign of desquamation. There was hoarseness and considerable irritation of the fauces for some days, probably partly due to the local action of the mustard, which we had some difficulty in compelling the child to swallow. In ten days the child was as well as ever.

PART II.—SURGERY.

SECT. I.—GENERAL QUESTIONS IN SURGERY.

(A) CONCERNING TUMORS.

ART. 85.—*On the Arrest of Cancer.* By Mr. WEEDON COOKE, Surgeon to the Cancer Hospital, &c.

(*Medical Times and Gazette*, June 5, 1858.)

AFTER an exordium deprecatory of medical scepticism, which led to fatalism, and in praise of a just confidence in man's powers to heal his fellow man, "which," said the author, "is only bounded by his intellect, by his inability always to control the object of his treatment, and by time, which wears out the machine he works upon," Mr. Cooke referred to the different forms of cancer, scirrhus, epithelioma, medullary sarcoma, cystic sarcoma, &c., as having broad outlines too distinct to the eye and the touch to require often the delicate but sometimes illusive aid of the microscope. He then spoke of the recurrence of cancer after operation as so peculiarly characteristic of this disease that he was disposed to include in the same category all recurrent so-called benign tumors. After noting the peculiarities of the different forms of cancer, the author continues: "In contemplating the phases of this disease, a glimmer of cheerfulness is shed over the sombre picture by a knowledge of the fact that scirrhus, the least active, is also the most common form. 1858 cases treated at the Cancer Hospital yield, of scirrhus 1344, epithelial 389, medullary 77, and cystic 35; so that scirrhus is as nearly three to one of all the other forms, and it is in this large majority that remedies are of most avail. The mamma is its most wonted seat, almost four-fifths of the scirrhus cases occupying that gland." The period of life at which the disease appears corresponds to the cessation of the catamenia—the average age of attack being 44. The blood at this period is rendered impure by the absence of that customary process which in so marked a degree clarifies the system when it is in force. How the scirrhus is formed out of deteriorated blood may be imagined, but cannot be known. Even hereditary taint yields little towards the solution, since but one in seven can trace any predisposition. The fact, however, of the climacteric association is still further shown in the Registrar's report for the last quarter, by which it appears that after forty years and upwards the deaths from cancer form four-fifths of the whole number. On the other hand, the influence of local injury is only testified to in one in eight cases. The broad fact, therefore, stands out that in the very large majority of scirrhus cases they do develop themselves at that climacteric period when the vigor of life receives a severe shock, the effects of which it is the peculiar province of medical science to soften and subdue. For many years now it has been the custom to cut out this local manifestation of a general disease, and very recently to destroy the tumor by a cauterizing process, which has the peculiar advantage of prolonging the operation some forty or fifty days. Before the present century operations for cancer were not so rife, many eminent surgeons having opposed them when they were performed either by means of the knife or caustic, which latter was at that time enjoying an ephemeral reputation in France. Specifics then became fashionable; arsenic and hemlock enjoyed the highest reputation; but these proving unsatisfactory, early extirpation was again proposed, and has been most freely practised, encouraged, no doubt, by the introduction of anæsthesia by ether and chloroform. That this proceeding is a cutting of the Gordian knot, and not a skilful un-

ravelment, cannot but be acknowledged, when we find that of 207 cases of operation observed at the Cancer Hospital, the disease has returned (taking the average) in fifteen months. A recurrence of the disease is more uncontrollable than the original tumor. A dyscrasia of the system is produced by the operation, and so greater activity of disease is provoked. By removing the tumor the reservoir is taken away, and the cancer-cells are distributed over the whole economy. "Experience," says Mr. Cooke, "leads me to the conclusion that there is in a great number of these tumors a natural ebb tide. The tumor grows at first rapidly, after a time, slowly: it then remains stationary, and at last begins to waste, until gradually it almost disappears. These favorable cases are seen in persons of cheerful temperament. In other persons the progress will be the same, but the termination a spontaneous sloughing out of the whole tumor. Sometimes the wound remaining will fill up and heal, or it will remain a dry scab for years without inconvenience, or a small superficial ulcer will continue to give some inconvenience, which may be relieved and kept in subjection for years by judicious treatment." Taking the climacteric disturbance as the grand exciting cause of the development of cancer, it is only rational to expect when that disturbance subsides, provided the patient is well supported and well managed, the mind relieved of all fear, and the cancer itself neither tattooed with caustics nor excised, that the cause being removed, the effect will have no further serious existence; that, in fact, the active cancerous tumor will become a mere inert fibrous mass, which is in a great measure reabsorbed by the neighboring vessels. Numerous cases were read by the author, illustrative of his views, and showing the advantage of constitutional tonic treatment. He then dwelt upon the importance of the inculcation of hope—"that charm for every woe," by both surgeon and friends; "it medicines the body no less than the mind, and should be administered with a full conviction that it is a most valuable therapeutic agent, and not as an amiable delusion." He spoke also of the influence of temperament, and suggested the simple division of "cheering" and "desponding," instead of the old and more complicated arrangement of Hippocrates. It will invariably be found, that while a melancholy mind, in which hope cannot be raised, is the severest enemy with which the surgeon has to battle, a cheerful temperament is such an aid to art, that with it a sufferer from cancer will tide over the evil days, and live to the usual period of man's existence. The treatment most relied on was good nourishing diet, with beer or wine. Soda to correct the secretions if necessary. Bark and hydrochloric acid, or iron as a tonic. Iodine and mercury are positively injurious, and opium should never be resorted to, whilst there is any hope of restoring the patient. As a local application, lead, either as a supporting plaster or as a lotion, when there is much activity in the tumor, has a very sedative effect. The carrot poultice cleanses an ulcerated surface admirably, if frequently renewed, while the chlorate of potash lotion is the most effective in healing the open wound.

These and other simple methods of dealing with the disease, which are all founded on the principle of restoring and preserving, and giving support to the vital principle, wasting no time in looking after impossible specifics, will advantageously displace the use of the knife and caustic in the majority of cases; "although," said Mr. Cooke, "I am anxious to state that there are cases, *ez. gr.*, epithelial cancer of the lip and of the extremities, as well as some forms of medullary cancer, in which operation is desirable and beneficial." A letter from Mr. Cooper, Consulting-Surgeon to the Liverpool Infirmary, was quoted, in which he says: "For my own part, I confess that I have known few cases—scarce any—where the diagnosis has been unquestionable, in which extirpation has been successful. On the other hand, I have seen many cases, not interfered with by the knife, whose lives appeared little, if at all, shortened by the affection." In conclusion, the author affirmed, modestly but decidedly, that constitutional treatment was proved in its results to be immeasurably superior to operative treatment, so much so, that whereas the disease always returns after operation, and then with an increased impetus, by constitutional measures, which should include moral as well physical support, and soothing local applications, it is arrested in its destructive progress, the new blood

throws off the vicious habit of the old; no more cancer-cells are laid down. The old disease becomes a mere inert, foreign body, which sloughs and is thrown off from the renovated system, or is gradually carried off with the other effete matters of the body. The plague is stayed, and the remainder of life may continue so uninfluenced by the terrible conflict which has been won, that length of days may be attained, and life ultimately ebb out in the calm twilight of evening.

ART. 86.—*On Cancer and New Growths.* By Dr. WILKS, Assistant-Physician to Guy's Hospital.

(*Guy's Hospital Reports*, 3d series, vol. iv. 1858.)

Believing that the attempt to give some particular characteristics to one form of growth and name it cancer, and to another and style it innocent, is only a partial way of regarding new growths, which amount to many in number, Dr. Wilks endeavors to take a general glance at morbid products of all kinds, and see how they pass by insensible degrees into one another. It may be true that each end of the scale of growths tends, in different directions, towards malignancy or innocency, or heterologous and analogous tissues, if these terms be preferred; that the former denote a vice in the system, and the latter a local perversion of nutrition. Dr. Wilks thinks, indeed, that the blood maintains in integrity the several tissues of the body, but that, if there be any local abnormal condition, arising, for example, from an injury, a so-called inflammation, with its products, results; and if the change in the part be chronic, a tumor may follow, the disposition still being towards the production of a tissue analogous to that near which it springs, the most complex probably being gland-tissue; but if there be some fault or vice in the constitution, the material thrown out cannot attain a highly developed form, but its tendency is to a rapid increase of a simple cell- or fibre-growth, which shall extend to a fatal result, although under some circumstances, as when near bone, the local tissue may be superadded, as in an innocent growth. Dr. Wilks also endeavors to show how inflammatory products can scarcely be distinguished from malignant or scrofulous, as in the peritoneum, or how in several cases an inflammatory product might with equal propriety be called a tumor; how in the skin these various products pass by insensible degrees into another, so that names can be only affixed to the most marked forms, and how the same holds good with the great number of new growths styled tumors.

ART. 87.—*On Fibro-Plastic Growths.* By Mr. BIRKETT, Surgeon to Guy's Hospital.

(*Guy's Hospital Reports*, 3d series, vol. iv., 1858.)

In this paper Mr. Birkett relates fourteen cases of fibro-plastic growths, and deduces the following conclusions:—

"1. That the elementary tissues comprising the fibro-plastic growths differ from those entering into the composition of the tumors called carcinoma.

"2. That the natural history of the fibro-plastic growths is different from that of carcinoma.

"3. That the fibro-plastic growths may recur at the primary site of the new growth, or in its immediate neighborhood.

"4. That, unlike carcinoma, there does not appear to be a disposition to the production of fibro-plastic growths in any of the viscera of the chest or abdomen.

"5. That when secondary growths are developed in those organs, it will probably be carcinoma.

"6. That the glands of the lymphatic system do not become secondarily involved in disease with the fibro-plastic growths, as they do with carcinoma.

"7. That amputation of a portion of a member will not in every case prevent the reproduction of fibro-plastic growth in the stump, even although a joint intervene between the seat of the primary development and the stump.

"8. That excision of a primary fibro-plastic growth may be undertaken with

a better chance of the eradication of the disease than follows the removal of carcinoma.

"9. That by the reproduction of a fibro-plastic growth, and as the result of changes taking place in the tumor itself, death may ensue without the viscera being affected by any organic disease.

"10. That the progress of the disease is slower than carcinoma; that is, that the time occupied by the development of the recurrent growths may extend over a very long series of years.

"11. That the fibro-plastic growths are developed at a somewhat earlier period of life than carcinoma.

"12. That they appear to be closely in relation with fasciæ, and very often to spring up in those parts of the body where the fascial envelops or tendinous aponeuroses are developed in the most prominent manner.

"13. That they always form circumscribed lobes or masses, and never infiltrate the tissues of the organs of the body like carcinoma so frequently does.

Analytical Table of Cases.

Age.*	Sex.	Site of primary growth.	Age of primary growth.	Excision repeated.	Survived first operation.	Survived discovery of disease.	Cause of death.†	Case.
30 to 40	M.	Thigh	Some years	..	..	..	..	I.
27	F.	Neck	14 years	..	..	..	..	II.
19	F.	Leg	6 months	Yes, and amputation	..	..	..	III.
15	F.	Thigh	1 year	17 times	8½ years	9½ years	Pyæmia	IV.
30 to 40	M.	Scapula	Some mo's	7 times	5 years	6 or 7 y'rs	Pyæmia	V.
33	F.	Thigh	5 or 6 y'rs	Twice, then amputation	1 year	6 or 7 y'rs	Exhaustion	VI.
13	F.	Thigh	7 years	..	5 weeks	7 years	Exhaustion	VII.
34	M.	Leg	14 months	Amputation	..	..	..	VIII.
48	M.	Leg	18 months	Amputation	11 days	18 months	Pyæmia	IX.
35	F.	Leg	6 years	4 times, then amputation	2 years	8 years	State of new growth	X.
24	F.	Neck	2 years	..	..	..	..	XI.
20 to 30	M.	Back	10 years	Yes	..	..	..	XII.
13 or 14	M.	Forearm	6 or 7 y'rs	..	..	..	..	XIII.
50 to 60	F.	Diffused	10 years	Yes	10 months	11 years	State of new growth	XIV.

ART. 88.—Treatment of enlarged Bursæ.

By Mr. COULSON, Surgeon to St. Mary's Hospital.

(*Lancet*, May 8, 1858.)

"Reasoning from analogy," says Mr. Coulson, in a clinical lecture, "we might conclude that inflamed bursæ should be treated as inflamed synovial membranes, and indolent bursæ as encysted tumors. To a certain extent this may be true; but a great deal depends on the circumstances of each case. It is evident that active inflammation must be subdued by active means; but when this has been done, or when the tumor is naturally indolent, what treatment should we pursue? The principal methods recommended are—1. Rest and pressure. 2. Counter-irritation, mercurial or iodine frictions, &c. Abundant evidence exists to show that these and other similar means generally fail to effect a permanent cure. 3. Excision of the sac. In cases of small consolidated tumors this practice may sometimes be adopted; but extirpation of the bursæ is a severe operation; it has been followed by considerable inflammation, great disturbance of the health, and, in some cases, by death. 4. The bursal tumor, again, may be treated as a chronic abscess. It may be laid freely open by incision, or the contents may be evacuated, and iodine injections thrown in to modify the action of the lining membrane. 5. The practice, however, which I adopt myself, and which I would recommend to you, is more simple than any

* The age stated in this column is that of the patient at the time the disease was first observed.

† In this column, when not otherwise stated, the patient was alive and free from disease when last seen.

of the preceding; yet I have found it effective. The enlarged bursæ is punctured with a grooved needle, such as is used for exploring tumors and swellings of a doubtful character. After evacuation of the contents, pressure is applied by means of soap-plaster and bandage. This is renewed from time to time, and puncture of the sac also repeated, if necessary. The result is generally a permanent and safe cure. Even in cases where the bursæ are inflamed, and the skin over them red, I should prefer the puncture now noticed to making any incision into the tumors or supposed abscesses. You will have observed that incisions were made by the house-surgeons in both the cases related to you, and that a considerable quantity of purulent matter was discharged through the wounds. This is not conformable to my practice. In one case it appeared to have answered well; but in that of Susan S—, the patient's life was very seriously endangered by extension of the inflammation to the joints and the neighboring parts."

(B) CONCERNING WOUNDS AND ULCERS.

ART. 89.—*On the Diagnosis and Treatment of Syphilis to its primary forms.*
By Mr. HENRY THOMPSON, Assistant-Surgeon to the University College Hospital.

(*Lancet*, July 3, 1858.)

Mr. Thompson commences this paper by demonstrating the importance of deciding promptly upon the nature of the primary forms of syphilis, in relation to treatment and prognosis, and stated that our knowledge of syphilis had greatly advanced during the last few years, thanks to numerous observers in this country and abroad; but that to Ricord the merit is pre-eminently due of having defined the great laws which its phenomena exhibit. Without giving his adhesion in every respect to all the dicta of that illustrious observer, the author of the paper asserted that a careful examination of the subject compelled him to declare his conviction, that on almost, if not on all important points, his doctrines were supported by the phenomena of syphilis in this country.

Primary syphilis was defined as a specific disease communicated by a virus, of which the earliest manifestation is a chancre; and secondary syphilis as a constitutional affection, which, excluding hereditary transmission, originates always from a chancre, and manifests itself by characteristic symptoms, which follow, with more or less regularity, a certain order of evolution.

Two distinct varieties, and two only, of chancre were stated to exist—the soft or non-infecting, and the indurated or infecting chancre. Either of these might be attacked with phagedæna or sloughing, although much more commonly the former; but these conditions are the results of external circumstances, and not of any inherent quality in the sore itself. He laid down, as a principle, that, on seeing a sore in the early stage, we might, in five cases out of six, positively state to the patient, at the outset, a distinct prognosis as to the occurrence of secondary symptoms or the contrary, without risk of error; and that, in consequence, we might select the appropriate treatment at once, and pursue it with confidence.

Mr. Thompson defined the external characters of the indurated or infecting chancre; contrasted them with those of the soft or non-infecting chancre; pointed out that the first was *invariably* attended with indurated, painless lymphatic glands in the groin, which attested the nature of the sore after the latter had disappeared; and stated that constitutional syphilis was certain to follow sooner or later, the induration of the sore itself being, in fact, the first sign of the systemic infection. Next, he described the character of the soft chancre, which was not necessarily, nor, indeed, most commonly associated with any bubo at all, but if so, the bubo was inflammatory and would suppurate. In this case it was almost certain that secondary symptoms would follow.

He then considered the sores of a doubtful character, that is, those respecting which it was difficult at first to determine the nature, and showed how the two varieties might, nevertheless, in most cases, be distinguished by attention to known causes of error.

The treatment of primary syphilis, in these two forms, then succeeded. The employment of caustic, which, if sufficiently powerful, and applied early, would prevent constitutional infection, was strongly recommended. The potassa cum calce, on the whole, was regarded as the best. In the soft chancre, which was met with three or four times as often as the indurated chancre, there could be no occasion for mercury and iodine, as it was a purely local, not a constitutional disease. Local astringents or antiseptics, and if it was slow to heal, fifteen or twenty-grain doses of the potassio-tartrate of iron, twice or thrice a day, formed the best treatment. Such formed the bulk of the cases so frequently reported as examples of syphilis cured without mercury; in fact, whatever the treatment of these sores, no constitutional symptoms would manifest themselves. In the well-marked indurated chancre, small doses of the iodide of mercury, such as three quarters of a grain or a grain, guarded by about two grains of Dover's powder, appeared to suit more generally than any other form. The gums to be but very slightly touched, and the patient carefully preserved from salivation; this condition to be maintained for a considerable period. Where any intolerance of mercury by mouth was exhibited, inunction or fumigation should be substituted. Nothing, however, could be more obvious than the good effects of mercury in these truly infecting sores and early constitutional symptoms, provided its administration be kept within the limits recommended.

A tabular form, exhibiting the characters and tendencies of the two varieties of chancre by way of contrast, was presented, for the purpose of diagnosis, and showing the salient points of the subject at a glance. A copy of it follows here:—

Diagnostic characters of the two varieties of venereal sores.

1. *The soft or non-infecting chancre.*
2. *The indurated or infecting chancre.*

THE SOFT CHANCRE.

Anatomical characters.—Form: rounded, often irregularly so. Edges: sharp, well defined, as if cut with a punch; rather overhanging; not adhering closely to subjacent tissues. Surface: flat, but irregular, "worm-eaten;" often with yellowish or grayish matter adhering. No induration of tissues around, unless caused by caustic or other irritant; in which case the thickening is not defined in its limits, but shades off into the surrounding tissues, and has more or less the aspect of inflammatory action.

Pathological tendencies.—The secretion is contagious, purulent, and plentiful; hence these chancres are rarely single; often, perhaps most commonly, multiple, one giving rise to another. It is usually slow to heal, has a tendency to spread, and is liable to take on phagedænic action. The soft chancre appears, from the records of practice, to occur with a frequency about four times as great as the indurated chancre.

Characteristic gland-affection.—In many cases (but not in the majority) the inguinal glands are affected; in which case, one gland, usually, rapidly inflames and suppurates, and an open bubo is the result. The pus, at first, is inoculable, and capable of producing a soft chancre.

Prognosis.—The well-marked soft chancre is always a local affection, and does not affect the system; and no "specific" treatment (mercury and iodine) is required.

THE INDURATED CHANCRE.

Anatomical characters.—Form: rounded. Edges: sloping, not sharply cut; hard, sometimes a little elevated, closely united with subjacent tissues. Surface: hollowed or scooped out, but smooth, as if varnished; often grayish at the centre. Induration well defined, incompressible, like a cup of cartilage let into, or set upon, the tissues beneath, and movable over them; no inflammatory areola; usually makes its first appearance between the fifth and tenth day, never after the twentieth; generally long survives ulceration. Induration varies in degree somewhat with the situation; but, when slight, is nevertheless always defined.

Pathological tendencies.—The secretion is scanty, rather serous than purulent,

and is not very readily inoculated; hence the sore is usually single, rarely multiple, and if so the sores appear simultaneously. It is indolent, but less so perhaps than the soft chancre; rarely takes on phagedæna. Either sore propagates by inoculation; invariably produces its like.

Characteristic gland-affection.—It is invariably followed by slight swelling and marked induration of the inguinal glands on one or both sides (the sore being on the genital organs); usually several glands are affected; they are hard, incompressible and roll under the finger, are painless, and do not inflame or suppurate; except, in rare instances, from over-exertion, in scrofulous subjects, &c., but then the pus is not specific and not inoculable. The induration of the gland coincides in time with that of the chancre itself. The primary sore having disappeared, or being denied, the gland-induration is an invaluable sign for purposes of diagnosis.

Prognosis.—Constitutional syphilis will certainly declare itself sooner or later. Mercury will retard, modify, or prevent the evolution of secondary symptoms.

(C) CONCERNING FRACTURES AND DISLOCATIONS.

ART. 90.—*On the reproduction of Bones.* By Dr. TOLAND.

(*Charleston Med. Journal and Review*, July, 1858.)

In this paper Dr. Toland endeavors to show that entire bones and joints may be restored by proper management.

"In 1853," says Dr. Toland, "when I took charge of some wards in the State Marine Hospital, I found in the fourth ward, No. 12, a Mexican who had long been suffering from caries of the inferior maxillary bone. Finding the bone destroyed anteriorly, and the remainder diseased, incisions were made on the inside of the mouth, and the entire submaxillary bone removed. In a few weeks bony matter was deposited, and the motion of the jaw perfect. He left the hospital but little disfigured, and if the teeth had not been lost, the reproduced jaw would have been as perfect as the original. Dr. Reilly was then the resident physician, assisted in the operation, and witnessed the result.

"I was much gratified to find, in the July number of the '*Charleston Medical Journal*,' a case reported in the '*Moniteur des Hôpitaux*,' by Maisonneuve, of a similar character: 'The entire lower jaw was excised for an enormous fibrous tumor developed upon and involving the bone. In extracting the jaw, the periosteum was left *in situ*. A rapid cure was obtained—nearly the entire incision healing by the first intention. So little deformity results, that it requires a practised eye to detect the absence of this important bone. The movements of the mouth are all preserved; the tongue has recovered all its movements; speech is clear and distinct; swallowing is effected with great facility, and one month after the operation a dense substance was forming from the periosteum, which was expected in time to form a useful bony mass.'

"In 1853 a millwright, from Contra Costa, was admitted into the State Marine Hospital with a comminuted fracture of the great toe of the right foot. Finding, at the expiration of a month, that the bones were diseased, and believing, from the result of the treatment in the former case that the bones would be restored, instead of amputating the toe, they were removed. In four weeks they were reproduced, and the toe was as useful as before the injury—although I was not aware that the articulations were restored, supposing that a ligamentous substance supplied, imperfectly, the place of joints. Dr. Reiley assisted in this operation.

"In June, 1856, James Clark, who lives near the corner of Filbert and Battery Streets, consulted me respecting the propriety of having the middle finger of the right hand amputated. He had been under the care of a physician, who thought its removal necessary.

"The first and only half of the second phalanges being diseased, and believing they would be restored, I advised their removal; for if the first joint was even destroyed, the finger would still be useful. Assisted by Mr. Lindop,

an incision was made from near the junction of the second and third phalanges, and extended under the nail to the same point on the opposite side. The soft parts were then dissected from the bones, and the second phalanx divided about a quarter of an inch anterior to the joint. The wound was then closed by the interrupted suture, and the soft parts retained in a proper position by pasteboard splints and a bandage.

"In four weeks the bones were not only restored, but a joint had also been formed, the motion of which was as perfect as the original. Being a porter, and having used the finger before the ligaments were sufficiently strong to resist the force applied, there is a slight lateral curvature; but, in every other respect, the finger is as useful and perfect as the one on the other hand.

"Mr. M'Gowan, employed at Newland's stable, on California Street, was advised in June, 1856, to have the forefinger of the right hand removed at the second joint, and he came to my office for the purpose of complying with instructions. Instead of amputating the finger, the first and second phalanges were removed, and then treated as the preceding case.

"In a few days he resumed his occupation, and I did not see him for several months. His finger has recently been examined: the second joint is perfect, and the entire phalanx restored. The first phalanx, in consequence of the soft parts being allowed to contract, is shorter than the original—although a joint exists, and the finger is as strong and useful as before the operation.

"Mr. Shannon, a cooper, who resides at No. 6, Jackson Street, had a whitlow on the right forefinger, involving only the first phalanx, which was removed by a lateral incision. He resumed his business in a few days after the operation, and, although not subjected to the proper treatment, the bone was reproduced, and the motion of the joint is as perfect and the finger as strong and useful as before.

"Mr. Collins, who lives in this city, on Stevenson Street, between First and Second, had suffered for three months from a whitlow involving the whole of the right thumb. Before he became my patient, free incisions were made without affording relief. The thumb was enormously enlarged. The first and second phalanges were diseased, and the flexor tendon near the extremity destroyed.

"Notwithstanding its excessively diseased condition, I determined to remove the bones, although confident that the thumb would not be as useful and perfect as it would have been if he had received proper attention at an earlier period.

"On the 1st of April, 1857, the first and second phalanges were removed by a single incision, and the wound closed by the interrupted suture. Pasteboard splints and a bandage were then applied, and continued until cured.

"In six weeks the soft parts were healthy, and the bones and joints restored. Notwithstanding the destruction of a portion of the tendon, he has control even over the first joint, and the strength and motion of the thumb are daily increasing, which would not be the case if the tendon had not been reproduced.

"Mr. Littlejohn, who resides at Redford City, had suffered greatly for several weeks from a similar difficulty. He was operated upon on the 18th of April. An incision was made on the external side of the thumb, and both bones removed. This case progressed much more rapidly than that of Collins—and in four weeks the bones and joints were reproduced. The thumb is now as strong, and the motion as perfect, as before the occurrence of the difficulty.

"Mr. Blaisdell, who now resides in San Francisco, had the great toe of the left foot injured by a stick of timber. When examined, I found the second phalanx carious, although the first was healthy.

"In December, 1857, an incision was made upon the external side, extending from the articulation with the metatarsal bone to the extremity; both phalanges were removed, which was unnecessary, and the wound closed as usual. In four weeks from the time the operation was performed he could wear a boot without inconvenience. Both bones, with joints, have been restored, although the first phalanx was not diseased, which can only be accounted for by sup-

posing that the periosteum detached from the second phalanx furnished a sufficiency of body matter for the restoration of both.

"Elizabeth Gallman, who lives with Mr. Grey, North Beach, had suffered for three weeks from a whitlow of the right middle finger. The first phalanx was removed in presence of Dr. Raymond, and the finger examined in a few days by Drs. Sheldon and Hewer, which, although slightly enlarged, is as useful as before the operation, and the motion of the joint as perfect.

"Mrs. Cunningham had a needle broken in the first joint of the right forefinger, which produced caries of the first and half of the second phalanges. On the 1st of September, 1857, they were removed in the presence of Dr. Hewer. In five weeks she could use a needle with facility; and now, with the exception of a slight diminution in the length, the finger is perfect. She lives on Yerba Buena Street, and has recently been examined by Drs. Fitch and D. L. D. Sheldon.

"Recently, in the case of Mrs. Stone, of Sacramento, one-third of the second phalanx and two-thirds of the third were diseased, and the remainder healthy. The diseased bones, including the second joint, were removed in presence of Drs. Fitch and Hewer. Fifteen days have elapsed since the operation was performed, and the case is progressing favorably.

"Believing that the same course of treatment would be found equally successful when longer bones are implicated, during the summer and fall of 1856, assisted by Dr. Lind, the resident physician of the U. S. Marine Hospital, more than half of the clavicle, the os calcis, and portions of the os femoris and tibia, were removed with a similar result; but being unable—as they were sailors—to specify their place of residence, their cases will not be given in detail, although they were as successful as any that were previously or have since been subjected to the same treatment.

"On the 3d of December, 1857, James Allen, a gentleman from Crescent City, was examined, who had received a gunshot wound, ten months before. The ball passed through the wrist, and he had suffered excessively. Finding all the carpal bones and those of the wrist, with which they were connected, extensively diseased, I determined to remove them, it being the only course of treatment which could save the hand. Assisted by Drs. Fitch and Hewer, an incision was made in the direction of the metacarpal bone of the forefinger, which was removed, with half of the metacarpal bones of the other fingers, as well as the trapezoides, magnum, unciforme, and pisiforme. But one incision was made in the soft parts, and great care taken not to divide either the tendons or large bloodvessels. He has suffered but little since the operation. The constitutional disturbance is considerable; the hand is not swollen; the wound presents a healthy appearance, and no doubt is now entertained of saving the hand, and restoring it to usefulness.

"Although I have been engaged in the investigation of this subject for several years, even my personal friends were not apprised of the fact, until a sufficient number of cases could be presented to remove all doubt upon the subject. I am now satisfied that the proper course has been pursued, for the above cases not only prove the restoration of bone, but also that articulations sufficiently perfect have been and will invariably be reproduced."

(D) CONCERNING DISEASES OF JOINTS.

ART. 91.—*The restoration of Motion by forcible extension and rupture of the uniting medium in partially ankylosed surfaces.* By Mr. BRODHURST, Assistant Surgeon to the Royal Orthopædic Hospital.

(Pamphlet, Adlard, 1858.)

In a former volume ('Abstract,' XXV., p. 122) we gave an abstract of a paper in which Mr. Brodhurst recounts several cases of partial ankylosis of the hip, knee, and elbow-joint, in which the uniting medium had been ruptured, and where, after a varying amount of time, the power of motion had been successfully and safely established. In the present pamphlet some ad-

ditional cases are recorded, together with some further details as to the operation itself. Thirty-two cases have now been operated upon, and this is the result: In eleven instances complete power of motion, or nearly complete power, has been gained; in fourteen, partial, but useful, motion has been restored; and in seven, the limb has been rendered straight, and the joint has remained stiff. Of the eleven first-mentioned cases, eight were of the hip, one of the shoulder, one of the elbow, and one of the ankle. Of the fourteen in the second series, five were of the knee, four of the hip, two of the elbow, one of the shoulder, and two of the ankle; and of the remaining seven, four were of the knee, one of the hip, one of the ankle, and one of the elbow.

"The affections of joints," says Mr. Brodhurst, "to which this operation is applicable may be divided into two classes: namely, those in which muscular contraction coexists to so great an extent as to prevent the application of force to the adhesions until tendons and fasciæ have been subcutaneously divided, and those in which the adhesions may be easily ruptured, on moderate force being applied, and without the previous section of tendons, fasciæ, &c.

"In cases of partial ankylosis some muscular rigidity exists. About the hip-joint it may prevent all semblance of motion: the extremity may be in its extended position, with the joint apparently rigidly fixed. At the knee-joint, also, the flexor muscles of the leg may be so rigidly contracted as to prevent the slightest motion of the joint. It is more common, however, to find slight motion (just appreciable motion) at the knee, even with great contraction of the flexor muscles.

"Under the influence of chloroform, muscular rigidity may in some instances be so far overcome, that the adhesions may be ruptured without previous subcutaneous division of soft structures. Often, however, it is necessary to divide the tense tendons before the adhesions can be reached. Now, it is evident that, if force be applied to overcome great muscular contraction, and at the same time to rupture the fibrous adhesions, the soft structures—namely, the muscles—must yield before the deeper adhesions can be reached. But this is the treatment which was pursued by Louvrier, and was subsequently discarded on account of the fatal results which were induced by excessive violence. He applied so much force, and so suddenly, by means of an instrument which had been constructed for this purpose, that muscles were lacerated, arteries were torn through, and bones were fractured. Hence it is that I have divided these cases into two classes: namely, those in which, from great muscular contraction, it is necessary to divide tendons and fasciæ, and subsequently to rupture the adhesions; and, secondly, those in which muscular contraction may be sufficiently overcome by the exhibition of chloroform, to enable the adhesions to be ruptured without the use of the knife.

"When tendons have to be divided, the punctures are to be allowed to heal before extension is made. Dieffenbach, who was among the first to direct attention to this question, divided the tendons subcutaneously, and immediately afterwards extended the limb forcibly.* The wounds were consequently made to gape; and they thus became starting-points for extensive lacerations of the integument. Some of his operations were, doubtless, so far successful, that a crooked limb was made straight; but others were followed by violent inflammation and extensive suppuration, and in some instances it was necessary to resort to amputation. In none was the motion of the joint restored.

"And, again, Langenbeck taught that the employment of anæsthetic agents caused perfect relaxation of the contracted muscles; so that the patient, being under their influence, it was not necessary to divide tendons, for the limb might then be extended without fear of rupturing the muscles.† That this statement involves an error was proved by his practice: for serious accidents—such as dislocations—not unfrequently attended these violent operations. Besides, when structural change has taken place in the muscle—when it has been for a long period much contracted, or when adhesions exist—it cannot yield to a suddenly extending force without its fibres being ruptured.

* Durchschneidung der Sehnen und Muskeln.

† Commentatio de Contractura et Ankylosi Genu.

"Therefore, it is manifest that it became necessary to reconsider the treatment of partial ankylosis, that neither the danger which had been incurred by Langenbeck should again be encountered, nor the more serious consequences which had resulted from forcible extension with gaping wounds, as had been practised by Dieffenbach, Palasciano, Bonnet, and others.

"It has been my first object in the treatment of these cases to remove such impediments to extension as are offered by contracted muscles and by tense fasciæ—to divide subcutaneously all such structures as would be likely to interfere with the extending process. The wounds were then closed, and reunion was promoted by rest. When this had fully taken place, the full effect of chloroform was obtained, and the limb was extended, a suddenly imposed force or a series of jerks in the direction of flexion being sufficient to cause the adhesions to yield suddenly with a snap or with a more prolonged tearing sound, or, indeed, without an audible result, and with sudden yielding. But when muscular tension could be entirely overcome by chloroform, and the condition of the limb was such that subcutaneous sections were not necessary, there being neither tense fasciæ nor adhesions of the skin, chloroform was administered, and its full effect having been obtained, the adhesions were ruptured, muscular relaxation being complete.

"If one point is more worthy of attention than another, it is the management of the skin while the fibrous adhesions are being ruptured. Adherent cicatrices and points of adhesion should be previously subcutaneously divided; so that unequal pressure may, as far as is possible, be removed during the act of extension, and especially from those weakest points—the neighborhood of cicatrices. And should the continuity of the integument be endangered by the extension which may be necessary for the replacement of the articular surfaces, it is preferable to complete this replacement on a second occasion rather than to risk the smallest rent of the skin. As might *a priori* be expected, those cases are attended with the greatest success where the adhesions are ruptured on the application of moderate force, and when they yield with a single snap; where the skin is in no measure endangered; where the adhesions are extra-capsular; and where the integrity of the joint is so far preserved that there is no tendency to dislocation. When, however, in consequence of partial dislocation, of extensive adhesions within the joint, or from other cause, considerable force has to be employed, it behooves the surgeon to be careful as to the direction and extent of the force used, especially when cicatrices exist, that the integument may not, by a violent movement of the limb, be ruptured. With care this accident will never occur. But, as it is not always possible to destroy all the existing adhesions without endangering the continuity of the integuments, it is more prudent, when great tension has been induced and rupture of the skin appears to be imminent, to remit extension, and to complete the operation on a future occasion. After the subsidence of any inflammation or tenderness which may have been induced, the remaining adhesions will probably yield to gentle pressure, or on the application of slight force.

"Again, the following is a point to which I would especially direct attention, namely, that the adhesions having been ruptured, no further motion or examination of the joint should be permitted. The observance of this rule is, I believe, essential to ultimate success. On one occasion I disregarded it, and, having ruptured the adhesions, I examined the joint to ascertain that its motions were extended and perfectly free. Inflammation followed, which lasted several days. It is unnecessary to examine the state of the joint at this time. The surgeon may rest assured that the joint is free when he has heard the snap, or when he has felt the limb suddenly yield. His whole aim then should be to prevent inflammation, which is most certainly effected by preventing any further motion of the limb.

"Before chloroform is administered, a gutta-percha splint should be moulded to the limb; and it may be allowed to harden while the chloroform is taking effect. This splint is to be removed before extension is made, and it is to be replaced as soon as the adhesions have been ruptured, and it may be worn until tenderness about the joint has ceased. When ** *ness has entirely or

nearly disappeared, the limb may be moved gently. It may be necessary to give a small quantity of chloroform before motion is attempted for the first time, or even on two or three subsequent occasions. Each time motion will be borne more easily than the last time, and very soon forcible movements by means of ropes and pulleys may be instituted. Or, in the case of the hip, if the pelvis cannot be otherwise firmly fixed while the thigh is being moved, a chair should be constructed by means of which the pelvis may be firmly grasped, and the thigh may then be flexed and extended to the full extent of motion, or as far as it can be borne, by means of a lever attached to the chair itself. Also, when the shoulder is the affected joint, some difficulty may be experienced in fixing the scapula firmly. This, however, may be overcome by means of a gutta-percha splint moulded accurately to the upper part of the back, the ribs and the lower part of the neck, leaving the joint itself uncovered. When this is firmly bandaged on to the thorax, motion may be given to the upper arm without fear of moving the scapula.

"After the tendons have been divided, and the adhesions have been broken down, an extending apparatus is to be applied, and extension is to be carried on rapidly. And when extension is complete, motion is to be attempted, at first under the influence of chloroform, and passive motion may then be continued, as has been above explained.

"In some instances, after rupture of the adhesions, pain is inconsiderable, and passive motion can be borne well; but in others motion cannot be borne, or it cannot be borne with sufficient force to re-establish the use of the joint. It is essential that passive motion should be employed during many weeks, not only that the joint may reaccommodate itself to motion, but also that, where the adhesions are intra-articular, the joint may be, so to say, redeveloped, just as a 'false' joint is formed by solution of the solid fibrous material connecting the broken ends of a long bone, where perfect union has been prevented by motion of the parts. Also, passive motion is essential, that the muscles which have been long motionless may lose their rigidity, and that, from being attenuated and pale, they may regain their fulness and color. The time which is necessary to this end varies, and is in some measure proportionate to the period during which these organic changes have existed. A short time, however, suffices in a large number of instances to regain some power of motion; and when power of voluntary motion has commenced, it increases rapidly. Even in the 'false' joint a capsule may be formed, and synovia may be secreted; how much more readily the structures will reaccommodate themselves in the true joint to the purposes of motion will be shown by some cases which I have selected out of many, as examples of the restoration of motion in joints after the rupture of adhesions.

"But, it may be asked, to what class of cases is this operation applicable? To which I would reply that it is applicable to all forms of partial ankylosis which have resulted from simple forms of inflammation. As, however, various meanings are attached to the terms true, and false, or partial ankylosis, it will be desirable to give an exact definition of the terms, that it may be fully understood what meaning is intended to be conveyed.

"True ankylosis is said by some writers to consist of intra-capsular adhesions, and false ankylosis of extra-capsular adhesions. Others describe true ankylosis as 'loss of motion in a joint,' and false ankylosis as 'that condition in which the movements of the joint are more or less interfered with.' And, again, a third definition is, that bony adhesions constitute true ankylosis, while fibrous adhesions or muscular rigidity only form partial or false ankylosis. Therefore it is necessary to define the meanings which the terms 'true' and 'false' are intended to convey.

"There is no doubt that the term 'ankylosis' may be applied to rigidity of a joint, from whatever cause. In using the term 'false ankylosis,' however, I wish to be understood as referring to that condition of a joint in which fibrous adhesions have been formed between the articular surfaces entering into the formation of the joint, or which connect the extremities of the bones—whether intra- or extra-capsular, in contradistinction to bony or true ankylosis. And without limiting the term 'false ankylosis' to fibrous adhesions within or with-

out the joint, I wish for my present purpose to understand by the term *false ankylosis* fibrous adhesions within or external to the capsule, producing immobility of the joint."

(E) CONCERNING OPERATIONS.

ART. 92.—*A new Method of Amputating.* By M. MAISONNEUVE.

(*Archiv. Gén. de Méd.*, June, 1858.)

At a meeting of the Académie des Sciences, held April 26th, 1858, M. Maisonneuve read a note on a new operation for amputation, which he calls the *diaclastic method*. The peculiarity of this method is, that the knife is not used for dividing the muscles, nor the saw for cutting the bones, nor permanent ligatures to arrest hemorrhage; and that, contrary to the ordinary method, the division of the bone constitutes the first step of the operation, and precedes the division of the soft parts.

The principal object of this method is to avoid the occurrence of purulent infection, by substituting for the ordinary process of division by cutting instruments, the process of breaking, tearing, and extemporaneous ligature, the con-tinuing action of which obliterates effectually the vascular orifices.

M. Maisonneuve uses for the execution of his method an *osteoclast*, or instrument for breaking the bone; and a powerful *serre-nœud* for the division of the soft parts. The author describes the operation in the following manner:—

The patient having been brought under the influence of chloroform, the surgeon applies the osteoclast precisely on the spot where he intends to break the bone, taking care to protect the soft parts in contact with the instrument by thick compresses; then, giving the screw several turns, he produces the fracture; he removes the instrument, and immediately substitutes the *serre-nœud*, in the metallic loop of which he embraces the member ten or fifteen centimetres below the point of fracture; then, turning the screw, he gradually compresses the tissues until the circulation in the vessels is interrupted. This done, he divides the muscles to the bone by a circular incision with the bistoury, two or three centimetres below the *serre-nœud*, tears off by a twisting movement the extremity of the member which is attached merely by some adhering portions of muscular tissue, and finishes the operation by continuing to turn the screw of the *serre-nœud* until the tissues embraced in the loop of the ligature are completely divided. If the last step of the operation is conducted with prudent slowness, not a drop of blood will ooze from the wound resulting from the amputation, whatever the amputated member may be.

This singular method has been applied with success to five amputations of the leg and to one of the forearm.

ART. 93.—*On painless Cauterization.* By M. PIEDAGNEL.

(*Bull. Gén. de Thér.*, April 15, 1858.)

According to M. Piedagnel, an eschar may be caused without pain by using as the caustic a mixture of three parts of Vienna powder (caustic potass and quicklime) with one part of hydrochlorate of morphia. A paste is formed by mixing these powders with a sufficient quantity of water, alcohol, or chloroform, or else the powders are made up into hard dry disks by means of gum. M. Piedagnel also tells us that the process of blistering may be deprived of its painfulness by adding morphia in the same proportions to the powdered caustarides. As yet, this plan does not appear to have been sufficiently tried.

(F) CONCERNING INSTRUMENTS.

ART. 94.—*On the use of metallic sutures and metallic ligatures in Surgical Wounds and Operations.* By Dr. J. Y. SIMPSON, Professor of Midwifery in University of Edinburgh.

(*Medical Times and Gazette*, June 5, 1858.)

In this paper Dr. Simpson gives some valuable historical and critical remarks

respecting the use of metallic sutures in surgery. He also suggests that the use of metallic ligatures to secure and tie the bloodvessels laid open in the sides and depths of wounds made in the course of surgical operations and injuries, is a matter of as great, if not greater, moment than the use of metallic sutures to close the outer lips of such wounds.

The idea itself of employing metallic threads for surgical sutures is not entirely modern, however much the practice may be deemed so. In his learned dissertation on the "Acia" of Celsus, John Rhodius alludes to many different forms of thread, as the *filum*, "*lineum, laneum, sericum, xylinum, aureum, argenteum, ferreum, plumbeum*." After speaking of the employment of gold and iron threads in the industrial arts, he alludes to the question of these two metallic threads being capable of use in surgical sutures; and evidently without ever having tried them, he condemns them as unfit for such a purpose. "*Alterutrum certe subtile admodum continendis vulnere oris sine evidenti doloris molestia vix conferre potuit*." (p. 192.)

During last century, however, metallic sutures appear to have been used, in some isolated examples, by one or two surgeons. Thus, Purmann, "Chief Chirurgon to the City of Breslau, in Germany," as he is styled on the title page of the English edition of his '*Chirurgia Curiosa*,' used, with alleged great advantage, metallic sutures in wounds of the tongue. The metallic sutures which he employed consisted of what has been specially recommended in modern times, viz., silver threads or silver wire. Needles of gold and silver were long preferred by most surgeons in applying the twisted suture for the cure of hair-lip. In his '*Elements of Surgery*,' published in 1746, Mr. Mihles speaks of employing silver and gold threads in the operation for hare-lip instead of pins, and figures a needle fitted to draw these metallic threads through the sides of the cleft lip.

The first surgeon in our own times who appears to have actually used metallic threads in practice, was the late Professor Dieffenbach, of Berlin. In a paper on 'Staphyloraphy' published in 1826, he has detailed several instances of that operation, in which he used leaden thread to unite and keep united the sides of the divided palate. He preferred for this purpose threads of lead to threads of silk, as he found the ends of the leaden thread could be made by mere twisting of their elongated extremities, to bring into contact the raw sides of the wound more easily than could be effected by attempting to tie and knot the end of silk threads, by introducing the fingers so deeply within the cavity of the mouth. "The difficulty," says Professor Fergusson, "of keeping the first noose steady has often been alluded to; the lead ligatures, by being twisted together, obviate this difficulty." The metallic suture in staphyloraphy has been alluded to by many later surgical writers (and modified by some), as, for instance, Mr. Liston in 1831, Velpeau, Pancoast, &c.

Metallic sutures have been adopted in other plastic operations besides that of staphyloraphy. Gosset stitched together the sides of a vesico-vaginal fistula with gold wire, the gold threads being left in for twenty-one days. In his '*Practical Essays on Plastic Surgery*,' Mr. Spencer Wells observes: "The lead suture is sometimes useful in deep operations. A piece of soft lead wire is armed at both ends with a short needle. These are passed, by means of forceps or a needle-holder, from within outwards, and the needles removed. The ends of the lead wire are twisted together until the wound is brought into apposition. They are then cut off. This is the easiest suture to apply in cases of vesico-vaginal fistula when deep-seated. The only objection to its use is the necessity for protecting surrounding parts from irritation caused by the ends of the wire."

The use of metallic threads has been extended by some European surgeons to the stitching of common surgical wounds. In the '*British and Foreign Medical Review*' for April, 1846, p. 286, it is stated that platinum wire as a suture-thread has thus been "successfully employed at Guy's Hospital by Mr. Morgan." One of Mr. Morgan's colleagues at that hospital, the late Mr. Bransby Cooper, in his '*Lectures on Surgery*,' published in 1851, when speaking of the treatment of common surgical wounds by the interrupted suture, observes that this, "the interrupted suture, is the one more frequently used by

surgeons, and silk is the ligature generally used; but platinum wire is preferred by some surgeons. As, however, it is rarely necessary or right to leave the sutures longer in the wound than forty-eight hours, I think (Mr. Cooper adds) it signifies little whether platinum wire or silk be employed." Again, Mr. Guthrie, when describing the treatment of wounds left by amputation, directs that "the common integuments of the stump should be drawn together in primary amputations by sutures formed of flexible leaden wire; by threads of silk, if leaden wire are not obtainable."

But in America the subject of metallic ligatures has met with more attention than in Europe. In 1832, Dr. J. P. Mettauer, of Virginia, employed them with perfect success in operating in a very aggravated case of laceration of the perinæum and rectum, produced the year previously by a tedious labor. The laceration extended as high as three inches upwards, along the anterior wall of the rectum. After sufficiently removing and denuding the hardened edges of the lacerated cleft, and the parts exterior to them, Dr. Mettauer stitched carefully together the abraded surfaces with ligatures of lead wire. "As the ligatures were applied they were tightened, so as to bring the abraded sutures in contact; and then their ends were twisted together, and cut off of convenient length. About twelve ligatures were required to close the wound. From time to time the ligatures were tightened by twisting them, and the vaginal margins of the laceration cauterized with nitrate of silver to favor the formation of granulations, which it was judged would greatly strengthen the union in this part" (p. 114). The bowels were constipated for four days. The leaden suture threads were not removed till six weeks, "the parts having united perfectly." In concluding his account, Dr. Mettauer observes, "leaden ligatures were preferred in the management of the foregoing case, as experience had proven them, not only less irritating and liable to cut out when tightly drawn than any other material with which I am acquainted, but infinitely more convenient and effective in maintaining a uniform and perfect apposition by the ready facility of simply twisting them, and a proof that the leaden ligature may act forcibly for a long time without cutting out. When they were removed in the present instance, it could not be perceived that any material encroachment had been made upon the margins of the cleft" (p. 115).

Four years after recording his first case in the 'American Journal of Medical Science,' Dr. Mettauer reported six additional instances in which he had operated for extensive lacerations of the perineum. "In all of those cases," he states, "the recto-vaginal wall was completely divided, so as to convert the two passages bounded by it into one." Six of the operations were attended with complete success. In the seventh case, the wound partially tore open some weeks subsequently under the distension produced by the passage of "a large indurated mass of feces, causing intense suffering;" and the patient had not yet submitted to a second operation for her cure. In all the cases in which he operated, Dr. Mettauer used the leaden thread as a suture; cutting it out, however, earlier than in his first case, or apparently from eight to twelve days after its insertion; and leaving the extremities of the wire longer than at first, in order that they might be more readily seized and tightened by an additional twist or two, if they offered to become loose during the first few days following the operation.

In concluding this contribution, Dr. Mettauer observes, "My experience leads me to believe that every case of the afflictive accident is completely remediable. I decidedly prefer the metallic suture in the treatment of this infirmity. With it we are enabled to close and confine the denuded margin of the fissure with more ease and certainty than with the silken or thread suture. And should the least gaping of the wound take place, a few twists of the free ends of the wires will enable us to close it up again. The leaden suture, too, does not cut out as soon as silk or thread."

In the same year (1847) in which he published this second essay on the cure of lacerated perineum with metallic sutures, Dr. Mettauer published an account of some cases of vesico-vaginal fistula which he had treated on similar principles. In his first case the opening in the back wall of the bladder was "fully the size of a Spanish milled dollar, and nearly circular." Its edges were de-

nuded and brought together with eight leaden sutures; and after the extremities of these sutures were twisted and tightened, the opening was perfectly close in every part of it, and the line of contact of the opposing surfaces measured two inches. A short, light, silver catheter was permanently retained in the bladder. On the third day the wires were tightened, and again on the seventh. On the thirteenth day the ligatures were removed, and perfect union was found to have taken place along the whole line of contact. The cure was complete, and the woman bore two children subsequently without any return of the accident. Dr. Mettauer operated in five other cases of vesico-vaginal fistula, but not always with the same success. In his second case the fistulous opening was diminished, but not obliterated, after eight operations. In two of the six cases Dr. Mettauer employed thread sutures, but he did not "find them to answer so well as the metallic." His results, however, on the whole, were so favorable as to induce him to conclude with the strong allegation, "I am decidedly of opinion that every case of vesico-vaginal fistula can be cured, and my success justifies the statement."

Dr. Marion Sims, formerly of Montgomery, Alabama, now of New York, published in 1852 an essay on 'The Treatment of Vesico-Vaginal Fistula,' describing his mode of operating, and his specialities of management in this class of affections. In this essay Dr. Sims, among other suggestions, recommended the lips of the fistula, after they were refreshed by the surgeon's knife, to be held together by threads of silver wire used as a suture. Latterly a "Woman's Hospital" has been established in New York, principally for the treatment of fistulae and other injuries resulting from parturition; and Dr. Sims has, as surgeon to that institution, had ample means of proving the valuable and happy results of his treatment. His great and acknowledged success in the cure of urino-vaginal fistulae, and their allied lesions, he himself attributes principally and essentially to the employment of sutures of slender silver wire instead of sutures of silk, &c. At the last anniversary meeting of the New York Academy of Medicine Dr. Sims read, and has lately published, a discourse upon the use of "silver sutures,"* displaying (to adopt his own words) "all the ardor and enthusiasm of a devotee." In this discourse he proposes to extend—and relates, indeed, various cases, showing that he had in his own practice extended—the use of silver sutures from vesico-vaginal fistulae to all the common wounds and operations of surgery. Speaking of silver wire as a suture, he remarks, "From the day its wonderful effects were witnessed in vesico-vaginal fistulae in 1849, I have never used any other suture in any department of surgery" (p. 32); and "I declare it (he elsewhere observes) as my honest and heartfelt conviction that the use of silver as a suture is the great surgical achievement of the nineteenth century" (p. 8).

Dr. Sims further indulges in the following enthusiastic and prophetic remarks regarding the value of the silver suture and its "universal applicability in general surgery:" "It is (he says) to revolutionize surgical dressings, and to insure more beautiful and prompt cures. With it, properly applied, there can be no gaping wounds to heal by the suppurating process, where there is skin enough to cover a stump; and in many cases erysipelatous inflammation, and even hospital gangrene, may be averted by substituting it for silk as a suture. After all amputations we must use sutures of some sort; and how often do we see silk ulcerating out, and creating such tendency to suppuration, that we are compelled to remove them before there is sufficient union to resist the retraction of the tumefied flaps. But with silver there is no inflammation, no suppuration, no cutting out of sutures, no gaping or retraction of flaps, and therefore no necessity for disturbing the dressing till all is firmly united and permanently well. This," Dr. Sims adds, "is no vain imagining; though enthusiastic, I am not wildly so, for all this has been familiar to me for the last eight years, and I but speak what I know. The next eight years will not find an educated physician anywhere who will dare to use silk sutures, for the silver-thread will now become as essential to the dressing-case as the needle itself;

* 'Silver Sutures in Surgery,' the Anniversary Discourse before the New York Academy of Medicine. By J. Marion Sims, M. D. New York, 1855.

and if I may be allowed to venture a prediction, I will say that fifty years hence the statistics of our hospitals will show a vast improvement in their bills of mortality after great operations, and this improvement will be due mainly to the use of silver as a suture. Look at its results in injuries of the vagina. Before this discovery, operations for vesico-vaginal fistula, and its congeneric affections, were often attended with risk to life, while a cure was a mere accident. But how is it now? Why, every case is easily and perfectly curable that has tissue enough to render any operation whatever practicable; while a failure is the exception to the rule. Besides, there is not the least risk to life, as there is never any fever, or the slightest constitutional disturbance. I am not claiming too much for this suture when I say, that the same relative results must be attained in all other surgical operations requiring sutures, if the same method be adopted. My language is nowise extravagant; and I shall yet live to see the day, when the whole profession of the civilized world will accord to this simple discovery the high position of being the most important contribution as yet made to the surgery of the present century," (pp. 44 to 46).

The very earnest and unusual terms in which Dr. Sims thus describes the advantages of silver sutures, indicates at least a profound and intense conviction on his part of their great and unqualified superiority over sutures of silk and common thread.

ART. 95.—*Silver Sutures in Surgery.* By Dr. J. MARION SIMS, of New York.

(*Annals. Discourse before the New York Acad. of Med.* Pamphlet, 1858.)

Dr. Marion Sims is a most enthusiastic advocate for the use of silver sutures in surgery, and this discourse is intended to show that he discovered them, and that a new era has dawned upon surgery in consequence. For other particulars we beg to refer to the end of the preceding article, where Dr. Simpson has said all that need be said upon the subject, in a way which we cannot improve upon.

ART. 96.—*A new Tourniquet.* By Dr. S. D. GROSS.

(*North American Medico-Chir. Rev.*, Jan., 1857.)

This instrument is a forceps-shaped compressor, resembling somewhat a pair of double callipers, opening on a central screw-pivot, with long blades of large curvature at one end and short blades of small curvature at the other, both pairs of blades being regulated by the same ratchet. A double tourniquet or a pair of tourniquets is thus produced—a large one for the thigh and a small one for the arm or for the thigh of a small person. The upper and lower blades on each side of the central screw differ also in length and curvature. The upper blades are shorter, narrower, and of a smaller curve; their extremities, being each provided with a pad which works upon a screw, dip downward so as to direct the pad upon the artery, and by means of a few turns of the screw of the pad, to press the latter firmly on the vessel. The lower blades are longer, broader, and more widely curved, being intended to maintain the counter-pressure on the outer side of the limb which the instrument is intended to grasp, while avoiding circular constriction, as in the tourniquet of Dorsey and the later instruments of Signoroni, Skey, and others.

For a better comprehension of the instrument we must refer to the wood-cut illustration which accompanies the inventor's description.

The advantages claimed for it are—first, facility of application; secondly, the amount of pressure commanded; thirdly, its ready adaptation to limbs of different sizes; fourthly, its confining the pressure and counter-pressure to the two opposite surfaces where alone it is wanted; and lastly, the ease with which it may be slackened or removed at any stage of the operation. With a slight modification it might readily be adapted to the femoral artery under Poupart's ligament, or to the external iliac just above, or to the axillary artery.

(G) CONCERNING ANÆSTHETICS.

ART. 97.—*Acetone as a new Anæsthetic.* By M. BECHAMP.

(Rev. Thér. des Méd., June, 1859; and Journ. de Physiologie, July, 1858.)

M. Bechamp appears to have made several experiments with this substance, and with very satisfactory results. Acetone, he tells us, is less disagreeable to inhale than amylene, and at the same time more rapid in its action and less permanent in its effects. It acts upon rabbits in thirty seconds, and the insensibility is complete. He tells us also that these rabbits recovered after a very prolonged inhalation, and his inference from this fact is that it is less dangerous than chloroform or amylene.

ART. 98.—*On the inhalation of Carbonic Acid as a safe and efficacious Anæsthetic.* By M. OZANAM.

(Archiv. Gén. de Méd., April, 1858.)

The inhalation of this gas, Mr. Ozanam tells us, produces effects which are very analogous to those of ether, only more transitory; and these effects he considers as belonging to four periods.

1. *The prodromic period.*—In this period the animal experimented upon is sometimes calm, sometimes rigid. The duration is from one to four minutes, according to the strength of the subject and the dilution of the gas with the atmospheric air.

2. *The period of excitement.*—This is almost absent, and at most it consists in some agitation and voluntary movement. The respiration is quickened and so are the beats of the heart, then, in about a minute, the muscles relax.

3. *The period of Anæsthesia.*—In this period the animal lies stretched on its side, breathing slowly and profoundly, and with the pupil moderately dilated, and with the heart beating slowly and more feebly. The anæsthesia is complete. M. Ozanam tells us that this state of complete anæsthesia may be kept up by continuing the inhalation, without any danger to life, for ten, twenty, thirty minutes, or more, and that the animal recovers almost immediately when it is allowed to breathe atmospheric air.

4. *The period of waking,* which is very transitory, appears to be somewhat like a state of drunkenness.

One curious fact transpires in connection with these experiments, and this is, that animals which have been frequently submitted to them, at length become so habituated to the gas, that they cannot be rendered anæsthetic by it.

ART. 99.—*On local Anæsthesia and Electricity.* By DR. RICHARDSON, Physician to the Royal Infirmary for Diseases of the Chest, &c.

(Medical Times and Gazette, September 11, 1858.)

Dr. Richardson's attention was directed to this subject in 1813. He says:—

"I was then engaged in investigating by experiment the influence of electricity on the blood in the living animal body. In one of these experiments a small dog was subjected to an electrical shock, resulting from the discharge of a battery of seventy-two Leyden jars. Wire chains ready for connection with the battery were placed—one round the throat of the animal, meeting over the upper part of the head, the other round the lower part of the body at the loins. The whole charge was at once passed through the body. The animal fell without a struggle, and lay before me to external appearance dead. There was no respiration for several seconds, but the heart continued beating. A little later, and there was a feeble respiratory gasp. I pricked the nose of the animal with the point of a scalpel, and blood issued, but no indication of sensibility on the part of the animal followed. A minute more, and I had laid bare about an inch of the right jugular vein. I tapped the vein, drew off a few drachms of blood for after observation, passed a ligature round the vessel above the opening, brought the edges of the flesh-wound neatly together, and

secured them by suture. By the time I had done, the signs of reanimation were well marked, but the operation had been performed without the slightest evidence of suffering. For a little time the respiration was short and irregular, but in a few minutes the animal rose slowly, looked about him, as if wondering where he had been, and recovered without a bad symptom.

"This was probably the first instance in which any operation was performed without pain, by means of electricity. This result of the experiment was purely accidental. The experiment was originally intended for a different object altogether; but, accustomed to operate on narcotized animals, the new fact of the perfect production of insensibility by electricity changed the intention of the experiment entirely in my mind. The idea of producing general anæsthesia for the purpose of an operation, by a repetition of this one electrical experiment, was of necessity out of the argument, for it were impossible so to adjust a shock as to produce a sufficient degree of general insensibility for an operation without the hazard of destroying life altogether. The fact of the production of insensibility was, however, striking; and this fact at once suggested to me that what could be done to the whole body might possibly be done to a part.

"To carry out the inquiry which had thus been presented, I tried the effect of passing electrical shocks of varying intensities through the limbs of animals. The shocks were severely felt in these cases, but I could never detect that at any instant after the shock the sensibility of the parts through which it had passed was at all destroyed. There was often some temporary twitching of the muscles of the limb operated on, but the merest attempt to produce pain succeeded.

"I next tried various experiments on myself. I charged twenty Leyden jars, and discharged them, either in combinations or one after the other in rapid succession, through one of my fingers. The shocks were painful to bear, and, when many were given, the last was felt as severely as the first; but afterwards the finger was as sensitive to a prick from the point of a lancet as it had been previously.

"I tried the local effect of the continuous current for long periods, but with as little success.

"I passed the electro-magnetic current through one finger for long periods, modifying the intensity of the shocks; sometimes submitting the part for periods of an hour or more to a gentle current; at other times increasing the force till the pain produced was scarcely endurable. On January 3d, and on August 8th, of the present year, I kept a finger for two hours thus exposed; but in these, as in all other cases, without the slightest effect in removing sensibility. While the finger was being subjected to the current, I tested its sensibility by pricking it with a lancet or needle. This test is, however, unnecessary, for so long as the part operated on is sensible of shock, it is sensible to a cut or a puncture. An animal deeply narcotized with chloroform is as little sensitive to electrical shocks as it is to the knife.

"In its local application, indeed, it seems to me that the electric current restores rather than destroys sensibility. One experiment will explain this. Let two fingers be placed in a freezing mixture, and held there until the external surface is so benumbed that the prick of a needle is not felt. Let them then be removed, and let pass through one the current from the electro-magnetic battery. In the finger thus operated upon, it will be found not simply that the sensibility will come back more quickly, but so much the more quickly as to lead to the unpleasant and painful reaction called vulgarly 'hotache.' The current acts like warmth in this respect.

"In one experiment the effects produced were very peculiar, and deserve special note. I placed the first and second fingers of the left hand in a mixture of ice and salt till they were entirely insensible to puncture. I then removed them from the mixture, and, after well drying them, I placed one wire from the electro-magnetic battery round the second finger, at a distance of three-quarters of an inch from the tip, and the other wire round the finger at the base. A gentle current was passed. For a brief period I was not conscious of the shocks, but suddenly the portion of finger included between the wires

from being white became red and injected, and therewith there was excited a degree of pain that was unendurable. By removing the wires, and applying cold once more, the acute pain passed off. But the most interesting point is, that while the first finger regained its normal sensibility in the course of an hour, and the second regained its normal sensibility in the parts which had been inclosed between the wires, the end of this second finger, from the point beyond which the upper wire had encircled it, remained completely insensible for four hours, and felt slightly numbed even thirty-six hours later.

"From these experiments I have no alternative but to believe that the electric current cannot, according to our present knowledge of its application, be made practicable for the production of local anaesthesia.

"The only way by which, as I would suggest, electric shocks can in any way be said to remove pain locally, is, that the pain which they excite creates a diversion, so that any new pain which may be inflicted on the part is not felt the less, but is lost in some degree in the pain which was pre-existent. I give a simple illustration. The schoolboy tells his new comrade that he can remove a hair from his head without the removal being felt. The skilful operator seizes a hair with his left thumb and finger, pulls it out quickly, and at the very moment strikes the head of his dupe a smart blow with his flat right hand. The operation is performed, and it may be without the pain which would have been elicited by a simple pull. The pain, however, is not removed, but diverted. When my finger was painfully affected by the electric current, the entrance of the lance or needle point into the skin caused sometimes a more acute, sometimes a less defined pain than is ordinary. Mr. Louis Parnell, who allowed me to perform some experiments on his finger, expressed that his sensations were the same.

"We have seen, nevertheless, in the first experiment related, that a powerful electric shock, sent through the whole body, will produce insensibility; why, therefore, should it not have the same effect in its local application? A dose of aconite tincture will render a body generally insensible to pain; a drop of the same tincture, put upon the lip, will produce numbness of the lip. Here is brought out at once a general and a local effect, each alike in kind but different in degree. Why, then, should not the same obtain with the electric shock? To answer this, the consideration of the modes in which insensibility is ordinarily produced is necessary."

ART. 100.—*Electricity as an Anaesthetic in Toothdrawing.* By Mr. FRANCIS, of Philadelphia, and others.

(*British Med. Journal*, Sept. 7, 1858.)

Mr. J. B. Francis has recently devised a new plan for producing insensibility during the extraction of teeth. In the 'American Journal of Dental Science' for July, 1858, we are informed that a number of operations of this kind had been rendered painless by means of electricity, in the presence of the Subcommittee on Science and Arts constituted by the Franklin Institute of the State of Pennsylvania, and of other gentlemen. The exclusive right to the application of electricity for the producing local anaesthesia in the extraction of teeth has been secured by Mr. Francis, who thus has, for a term of fourteen years, the sole privilege of "making, constructing, using, and vending to others to be used," the necessary apparatus. The news of this discovery, on reaching this country, has excited much interest. A considerable amount of correspondence on the subject has recently appeared in the *Times*, from which we make such extracts as will show the *modus operandi* of the agent.

Mr. W. K. Bridgman, of Norwich, describes the apparatus required, and its application, as follows:—

The apparatus is extremely simple, and consists principally of the common electro-magnetic machine used in medical electricity, a single cell and pair of plates constituting a Smee's battery, and a small electro-magnetic coil, with a bundle of wires for graduating the strength of the current. One end of the thin wire conveying the secondary current is attached to the handle of the forceps, and the other end of it to a metallic handle to be placed in the hand

of the patient. The instrument touching the tooth completes the circuit, and the current passes instantaneously. The wire attached to the forceps should be made to pass through an interrupting footboard, so that the continuity of the wire may be made or broken in an instant by a movement of the right foot of the operator. The advantage of this arrangement is, that it allows the instrument to be placed in the mouth without risk of producing a shock in coming in contact with the lips, cheek, or the tongue. A hole drilled in the end of the left handle of the forceps, and the end of the wire tapered to fit rather tightly, allows the substitution of one pair of forceps for another with scarcely a moment's delay.

Some cautions, however, are necessary. Mr. Joseph Snape, dentist to the Chester Infirmary, says:—

"The current should not be applied to a tooth with an abscess at the root, to a loose tooth, or to fangs imbedded in spongy gums, as the pain, in such cases, appears to be increased. When the sides of a tooth are decayed nearly or quite to the gum, the tooth and surrounding parts should be rendered as dry as possible, by means of French bibulous paper. Fangs, when the gums are not spongy, may be extracted with the forceps, after being treated in the same manner."

Again, Mr. C. Spence Bate, in the same paper, says:—

"The application of the wires from an electric coil and Smee's battery, higher charged than $1\frac{1}{2}$ deg., is in itself very painful to the gums and internal mouth. It is therefore an object of much nicety to regulate the amount of electricity, so as to preclude a painless operation becoming a very painful one, either from too much or too little electricity being administered." In his own case, Mr. Bate felt a bearable amount of electricity when the instrument was placed upon the tooth (under wisdom-tooth), but the same amount applied to the gums over the front teeth was excessively painful. The quantity of electricity that made the operation painless to him was not enough to kill the sensation of pain in a gentleman, for a similar tooth; whereas, in a lady, shortly after, it was quite successful with a less amount. In placing the instrument in the mouth, it is desirable that the broken contact in the negative rod should be restored before the instrument comes into contact with the gum, since the insertion of the former beneath the latter is one of the most painful parts of the operation in tooth-extraction.

II. SPECIAL QUESTIONS IN SURGERY.

(A) CONCERNING THE HEAD AND NECK.

ART. 101.—*Thirteen cases of Recovery after fractured base of the Skull.*

By Mr. PRESCOTT HEWETT, Surgeon to St. George's Hospital.

(*Medical Times and Gazette*, June 12, 1858.)

Mr. Prescott Hewett has been able to gather together some thirteen cases of recovery after a fractured base of the skull, in which the state of the broken bones was ascertained by dissection some time after the accident.

CASE 1.—A man met with a severe injury of the head, which subsequently led to an affection of the brain, and he died three months after the accident. An extensive fracture, which had not been suspected, was then discovered at the base of the skull; this fracture beginning in front of the mastoid portion, ran through the extremities of both petrous bones, and through the sella Turcica. The broken bones were about a line distant from each other. No attempt had been made at reparation.

CASE 2.—In a case reported by Mauran, the patient survived an injury of the head three years, during which he suffered greatly. When the head was examined, a piece of the petrous bone was found broken off, and around this an abscess had formed.

CASE 3.—In a case reported by Mr. John Davies, of Hertford, the patient committed suicide five months after a severe injury of the head, the symptoms

of which had been those of a fractured base. In the left temporal bone were the remains of a fracture running obliquely upwards and outwards between the squamous and petrous portions, splitting the Eustachian canal, as far as the tympanum, and another line of fracture also extended from the tympanum to the groove of the lateral sinus. The line of fracture was so imperfectly united that the broken parts of the bone were separated from one another during the working of the saw.

CASE 4.—In a case which was under the care of Mr. Stanley, in St. Bartholomew's Hospital, in 1840, the patient, *æt.* 9 years, died on the eighty-sixth day after a severe injury of the head, accompanied by bleeding from the ear. A line of fracture was traced from the squamo-parietal suture to the petrous portion, through the middle fossa of the skull. The bones were quite separated, and without the slightest traces of an attempt at union. The edges of the bones were bloody, and not in the least rounded off. And what makes this case still more interesting is that the clavicle, which had also been broken at the time of the accident, was firmly united by callus, ensheathing the broken extremities of the bones, and completely fixing them.

CASE 5.—A healthy man, 40 years old, fell from a height of twelve metres on to his feet. The only immediate symptoms were those of slight concussion, which soon passed off. But the accident was subsequently followed by cerebral mischief, which led to the death of the patient four months afterwards. Later, the case was under the care of M. Robert, in the hospital Beaujon. At the examination of the head, the posterior clinoid processes were found broken off from each other, and from the *lamina quadrata*; the right petrous bone also presented in its upper third an extensive fracture running in a transverse direction; a large fragment was completely separated from the rest of this bone.

CASE 6.—A man, *æt.* 45, was admitted into the Glasgow Infirmary, for a severe injury of the head, with bleeding from the right ear, caused by a fall down stairs, which had happened six days before. Ultimately, this patient so far recovered as to be dismissed from the infirmary at the end of eight weeks. Nine days afterwards he was seized with cholera, and died on the 5th day, under the care of Dr. Laurie. He had thus lived close upon eleven weeks from the time of the accident. On removing the dura mater, and carefully examining the bone, a fracture was found to extend from the superior part of the right parietal bone along its posterior margin, and a few lines from the lambdoid suture, joining the suture between the occipital and temporal bones, and terminating at the jugular fossa. On the interior of the right half of the occipital, and a portion of the corresponding parietal bone, there was a considerable deposit of ossific matter, which had nearly obliterated the groove of the lateral sinus. Between the fractured surfaces of the bones there were a few particles of ossific matter deposited, but the junction was far from being completed.

CASE 7.—M. Richet states that he had under his care a man who had met with an injury of the head, which was followed by a serous discharge from the ear. Recovery took place, for a time at least. But five months afterwards, and without any premonitory symptoms, strabismus made its appearance; this was followed by cerebral symptoms, and the patient died. At the post-mortem examination a fracture was discovered in the malar bone, from whence it was traced into the base of the skull, cutting across the petrous bone, and terminating in the foramen magnum. At first no trace of the fracture could be discovered in the petrous bone, notwithstanding the most careful examination; and it was not until after this bone had been macerated in nitric acid for a month that the course of the fracture was clearly made out.

The other six cases are made up of preparations in different metropolitan hospitals.

CASE 8.—In the first of these preparations* the line of fracture, starting from the outer part of the right frontal eminence, passes downwards, behind the external angular process, into the great wing of the sphenoid, and obliquely across the back part of the orbital plate of the frontal, then through the lesser wing of the sphenoid into the body of this bone, where it terminates at the

* St. George's Museum, ser. i., sub-se. xvi., A 1 and 2.

inner part of the left optic foramen. This extensive line of fracture is in some parts completely filled up by new bone inlaid between the edges, and in other parts there was merely a dense layer of fibrous tissue lying between the broken bones. The most perfect union is in the perpendicular portion of the frontal, and especially in the lesser wing of the sphenoid, where the fracture is scarcely perceptible. The inner surface of the bones presents in some parts an extensive deposit of new, spongy bone, extending in several places far beyond the line of injury. The patient, a middle-aged man, lived two months after a very severe injury of the head, from the effects of which he had, however, all but recovered, when he was attacked with erysipelas of the scalp, and died.

CASE 9.—The second preparation* was taken from a man, æt. 45, who died of malignant disease of the stomach and liver. Some nine weeks before his death the man had met with a severe injury on the left side of the head, accompanied by bleeding from the left ear and from the nose. The preparation shows a fissure, from three to four inches long, passing from the central part of the left parietal obliquely through the squamous portion of the temporal, where it divides into two branches, one running onwards, as Mr. Gregory Forbes reports, to the centre of the petrous bone, and the other passing into the meatus externus. The edges of the main line of fracture are in one part widely separated, extensive absorption of bone having taken place, and the gap thus left is one inch and a half long, and the eighth of an inch wide at its broadest part. Mr. Tomes examined this preparation in its recent state, and found that there was no bony union even at the points where the edges of the fracture were close to each other. In the second line of fracture, that passing into the meatus, the edges are in close contact, and apparently united by inlaid bone, the line of injury in this part being scarcely perceptible. The inner surface of the bones is in some parts roughened by the deposit of new bone in the neighborhood of the lines of fracture. The case has been fully reported by Mr. Gregory Forbes,† who presented the preparation to the museum of St. George's Hospital.

CASE 10.—The third preparation‡ was taken from a man, æt. 46, who died in St. George's Hospital, of extensive ulceration of the stomach. Three years before his death this man, it appeared, had been pitched from his horse on to the back of his head, the results of which were a severe scalp-wound, and delirium for several days after the accident. In this preparation a distinct line of fracture can be traced through the left side of the occipital bone, from the upper part down to the point where the groove of the lateral sinus terminates in the jugular foramen. In its upper part this extensive line of fracture is closely united by inlaid bone; externally there is merely a linear groove, and internally the union is even more perfect, the line of fracture being visible here and there only. All this part of the bone is very much thickened, and extensively perforated by minute holes, some distance even beyond the line of injury. In the lower half of the fracture the edges of the bone are thin, and bevelled off by absorption; here there is a slight gap, which in the recent state was filled up by dense, fibrous tissue. At the end of this fissure, just where the groove for the lateral sinus terminates in the jugular foramen, the bone looks as if it had been broken up into several pieces. The union is perfect, but the lateral sinus is at this spot all but obliterated, and the occipital is here ankylosed, on the one hand to the petrous bone, at the jugular articulation, and on the other hand to the atlas, at the condyloid articulation.

CASE 11.—The fourth preparation§ was presented to the College Museum by Mr. Henry Lee. It was taken from a man, æt. 45, who lived a little more than seven months after a severe injury of the head, with bleeding from the ears, nose, and mouth. He was killed on the spot by a second injury, involving the upper part of the spine. The preparation shows a line of fracture, passing nearly straight downwards through the squamous portion of the right temporal bone, to the upper margin of the meatus auditorius externus; thence it pro-

* St. George's Museum, ser. i., sub-se. . . A 5.

† *Lancet*, 1849, vol. i. p. 580.

‡ St. George's Museum, ser. i., sub-se. xxvi., A 3.

§ College Museum, series xii., sub-series iii., section B, 483.

ceeds along the upper wall of this passage, a part of the anterior wall being destroyed; and opposite the cavity of the tympanum it branches in two directions; by one of these branches the fracture extends through the posterior and lower border of the petrous portion of the bone into the jugular fossa, which it completely traverses; by the other it extends along the upper surface of the petrous bone, and ends in the hiatus Fallopii. That part of the fracture which lies in the squamous portion of the bone is, with the exception of a few minute apertures, closely and smoothly united; but in the part which traverses the petrous bone there are only two or three small points at which union has taken place. At the upper surface of the petrous bone there is a considerable loss of substance, leaving a large hole leading directly into the cavity of the tympanum. The margins of this hole, and the bone around, are smooth and rounded off, as if from absorption.

CASE 12.—The fifth* preparation belongs also to the College Museum. There is no history of the case; but this skull, it is thought, was removed with several others from the burial-place of some establishment for invalid soldiers in Germany. The occipital shows, on its left side, an extensive fracture, of an oval shape, passing from the upper part of the bone to within a short distance of the foramen magnum. At the lower part, there is a considerable displacement of the fragments, some of which have slipped downwards, and overlap a large portion of the outer surface of the bone. The displacement of the fragments has left, at the upper part, two irregular openings, the margins of which are smooth and bevelled off. The fragments are all solidly united to each other, as well as to the surface of the bone with which they have been brought into contact.

CASE 13.—The sixth preparation† is in the Museum of St. Bartholomew's Hospital. The history of the case is unknown. The squamous portion of the temporal bone was smashed, and a line of fracture extended through the meatus externus, and base of the petrous bone, nearly as far as to the edge of the foramen magnum. The fragments in the one part, and the line of fracture in the other, are united firmly, but with intervals of non-union.

ART. 102.—*A new mode of treating purulent Ophthalmia.* By Dr. M. DE CONDÉ.

(*Annales d'Oculistique*, t. xl.; and *Medico-Chir. Rev.*, Oct., 1858.)

M. De Condé, a Belgian military surgeon, dissatisfied with the present treatment of this disease, which seems to be very prevalent still in the Belgian army, lays down a new plan, based upon the following considerations:—

1. The greatest danger to the eye arises from the contact of the upper lid, which, inflamed and swollen, floods its surface with an acrid and corrosive pus. The excessive heat of the eyelid, the internal surface of which is rough and unequal, interferes with the nutrition of the cornea, while the acidity of the pus leads to its softening and destruction. 2. It is admitted that it is of importance to prevent the contact of inflamed mucous membranes by the interposition of an isolating body, such as charpie or wadding. This is seen in vaginitis, balanitis, and fissure of the anus. 3. This body, which may alone produce great amelioration, or even in some cases a removal of the disease, may exert a powerful effect if impregnated with an active agent. In this way lint, soaked in a concentrated solution of acetate of lead, and placed between the glans and the prepuce, will cure gonorrhœal balanoposthitis within forty-eight hours. 4. Cod-liver oil exercises a powerful action in disease of the mucous membranes, modifying and then suppressing their secretions. It strengthens the fibrous tissues of the eye and the cornea, and tends to prevent ramollissement. It is especially in ulceration and chronic ramollissement of this membrane that this double action is perceived. 5. The red precipitate ointment (four parts to fifteen of lard and fifteen of linseed oil) is an excellent substitutive agent, sufficing alone to arrest the disease when employed early. It is the best remedy for cutting short the ophthalmia of new-born infants. 6. A solution of the chloride of lime (thirty parts to two hundred of water) is an

* College Museum, prep. 2899, A.

† St. Bartholomew's Museum, series iii., c. 94.

energetic modifier, neutralizing with certainty the virulence of the secretions. 7. Lastly, perchloride of iron exerts an instantaneous hæmostatic effect upon the hemorrhagic mucous membrane, and an indubitable modifying influence upon the mucous secretion.

As an isolating body, M. De Condé, after trying various substances, gives the preference to wadding, as forming at once an inoffensive application, capable of imbibing and favoring the flow of the secretions, and of being impregnated with medicinal agents. A slip of the wadding somewhat longer than the transverse diameter of the eyelids, is brought opposite the palpebral aperture, and gently pushed up beneath the upper eyelids by means of the little finger or a large probe. Some cases are related as examples of the manner in which a disease often so tedious in its progress may, upon these principles, be rapidly cured.

ART. 103.—*On Dr. Von Græfe's operation for Glaucoma.* By Dr. VON GRÆFE.
(*Ophthalmic Hospital Reports*, No. 3, 1858.)

Dr. Von Græfe writes to correct certain errors and misstatements which, in his opinion, are to be met with in a recent paper by Mr. Critchett (*vide* 'Abstract,' XXVII, p. 234).

"Mr. Critchett," he says, "assumes in glaucomatous disease an increase of the intra-ocular pressure, and explains the curative action of iridectomy by the reduction of this pressure. He opposes this explanation to one presumed to have been given by me, which is based upon the restoration of the communication between the anterior and posterior chambers. I cannot but suppose that he here confounded two completely different works of mine, one of which is entitled, 'On the Curative Action of Iridectomy in Chronic Iritis and Iridochoroiditis,'* and the other, 'On the Curative Action of Iridectomy in Glaucoma.'† The explanation imputed to me by Mr. Critchett I have indeed given for the cases of iritis and iridochoroiditis, in which total posterior synechia exists, or where the iris is driven forward by exudation lying behind it; but it has never occurred to me to bring this explanation to bear on glaucoma. It has been rather the essential point of all my publications on glaucoma to base the nature of the disease on the increase of intra-ocular pressure. I have, in order to find grounds for this assumption, not only made use of the known external symptoms of the disease, as Mr. Critchett has done, but I have also taken advantage of the ophthalmoscopic ones (excavation of the optic nerve and pulsation of the arteria centralis retinæ), and not without arduous study. It was exactly this view which led me, as it has now Mr. Critchett, to the methodical carrying out of the remedies for diminishing pressure, specially in cases of glaucoma,‡ and not of internal ophthalmia in general. Finally, I arrived in this manner at iridectomy, because a number of experimental facts and pathological proofs argued that this operation is followed by a *permanent* reduction of the intra-ocular pressure. In fact, every attentive reader of my works must concede that the theory given now by Mr. Critchett agrees literally with mine, and there does not exist the slightest difference of opinion between us.

The method employed by me, for the last two years, of operating on glaucoma, is by no means injurious to the eye, as Mr. Critchett believes. After two, four, or at the farthest, six days, I dismiss from the wards my patients, who are constantly under the observation of a number of confrères interested in the subject. Although I have operated on upwards of a hundred cases of glaucoma, in the strict sense of the word, I have never known the slightest casualty to occur. The statement that I excise a third of the iris is decidedly erroneous. This would be also impossible, as I perform the iridectomy quite in the usual way, by a linear incision. I certainly recommend a larger portion of the iris to be excised than when a simple artificial pupil in leucoma adhæ-

* See 'Archiv für Ophthalmologie,' vol. ii. part 2.

† Ibid., vol. iii. part 2.

‡ "With regard to the employment of mydriatics and paracentesis in glaucoma, I refer to my earlier publication in the 'Archiv für Ophthalmologie,' vol. i. part 2, page 303."

rens is concerned, as I prefer in the latter case, from optical reasons (in common with my English colleagues), a small pupil; whilst, in glaucoma, greater experience has taught me, that, particularly in older cases, the excision of a small piece of iris does not exercise so complete and permanent an effect on the intra-ocular pressure as the excision of a larger piece. Notwithstanding this, however, *I never excise more than one-sixth of the iris.* The fact that I do not commence my incision in the cornea itself, but one millimetre behind it, in the sclerotic, can only diminish the injury to the eye. I never leave a portion of the iris in the wound, as does Mr. Critchett, because, according to my experience, the cure is thereby retarded. Sometimes a small prolapsus iridis is produced, but not the slightest advantage results from it. Even the advice to perform the excision in the upper part of the iris, when cosmetic considerations are to be taken into account, is found in my earlier work, 'On Artificial Pupil in Iritis, &c.:' it is repeated in my later work on glaucoma, and has been practised by me for some years. Truly, I cannot distinguish the slightest real difference between Mr. Critchett's method and my own, which would deserve to be mentioned among professional confrères in such a manner as Mr. Critchett has done. . . . I only regret here, as on many other occasions, that the wide space which separates men who devote themselves with similar zeal to the same studies, prevents them from communicating personally in an authentic form the results of their experience."

ART. 104.—*On the abuse of Mercury in Ophthalmic Diseases.* By Dr. ALFRED POLAND, Surgeon to Guy's Hospital.

(*Lancet*, May 15, 1858.)

The chief aim of the author is to draw the attention of the profession generally to the above subject, and more especially when practised by those not over-conversant with these affections. He is sorry to say that the study of eye-diseases has considerably declined, and that it is more and more becoming an isolated branch of the profession. In former years every hospital and general surgeon undertook the treatment of this class of cases, and the lectures on surgery at the several schools duly elucidated the principles and practice thereof. Now-a-days, on the contrary, with the exception of one or two leading medical schools, ophthalmic surgery had become isolated, and rendered perfectly distinct and separate; there are separate wards and separate lectures, which are, moreover unrecognized by the examining boards. The author hopes that this state of affairs might be remedied, and that persons before entering on practice should show some evidence of having studied, and become practically acquainted with the treatment of diseases of the eye. With these strictures the author cursorily surveys the general diseases of the eye, pointing out that in the majority of them mercury was not required. In the conjunctival inflammation, including also gonorrhoeal ophthalmia, mercury was admissible, inasmuch as they could be cured without its administration. So, also, in so-called strumous diseases, comprising ophthalmia and corneitis, it was a remedy that did no good, as attention to the secretions and excretions, with due regard to diet and the powers of the patient, sufficed to eradicate the complaint. It would hardly be credited that, in the year 1858, mercury was administered for penetrating wounds of the eye, yet he (Mr. Poland) was sorry to say such was the case; and, he remarked, what would be the results of operation for extraction were this line of treatment to be adopted? In diverting to scleritis and iritis, mercury came to our aid, more so in the latter than in the former disease; yet even in these affections more attention ought to be paid to the condition and constitution of the patient than the nature of the disease. It was too much the fashion to consider that because a part or organ had taken on inflammation, and, in consequence, had appended to its name the dreaded term "itis," it was to be combated by calomel, leeches, low diet, &c. Many an eye, and, perhaps, life, had been lost by this unfortunate appendage. As for amaurosis, the author naively stated that all the mercury in the world would not replace a cupped condition of the entrance of the optic nerve, nor would it remove a detached retina, nor promote the absorption of

dirty white pigment on the retina, nor restore the lost transparency of the retina, nor such other organic changes pointed out by the use of the ophthalmoscope. Yet mercury was, and is still, administered by some, for days, weeks, and even months. Space will not allow us to enter more fully into each of the topics brought forward, as the principles and treatment advocated are those generally practised and taught by the several leading surgeons who have studied eye-diseases. It was the author's endeavor, in his few loose remarks, to call attention to the simple fact, that an improvement had taken place in the last few years, by a more guarded abstinence from the use of the drug mercury in ophthalmic practice, and that such should be made known to the profession generally, so that they may avoid resorting to the remedy as a specific in inflammations generally.

ART. 105.—*On the different forms of Inflammation of the Eye consequent upon inherited Syphilis.* By JONATHAN HUTCHINSON.

(*Ophthalmic Hospital Reports*, No. 4, 1858.)

Mr. Hutchinson's objects in this essay are:—

I. To give a more detailed account than has yet been attempted of the form of acute iritis, occasionally met with in syphilitic infants.

II. To show that acute iritis, as a consequence of hereditary syphilis, is not so very rare as it has been thought, and that it now and then occurs at periods subsequent to infancy.

III. To endeavor to prove that the form of kerato-iritis met with in young persons, and formerly known as "aquo-capsulitis," is, in the majority of instances, of specific origin.

IV. To endeavor to prove that the disease known as "chronic corneitis," "interstitial corneitis," "strumous corneitis," is almost always a direct result of inherited syphilis.

V. To illustrate the connection with hereditary taint of some of the cases of deposit in or upon the retina or choroid, hitherto classed as "scrofulous."

VI. To show that certain cases of tinea tarsi, fistula lachrymalis, and other affections of the ocular appendages occurring in children, are of syphilitic origin.

ART. 106.—*Why does the operation for Strabismus sometimes fail?* By Mr. HOLTHOUSE, Surgeon to the Westminster and South London Ophthalmic Hospital, &c.

(*Brit. Med. Journal*, July 17, and Sept. 4, 1858.)

Confirmed strabismus may be due either to a shortened or hypertrophied condition of one of the recti muscles; or this may be combined with contraction of the conjunctiva and the subconjunctival tissue, and an adhesion of these to the sclerotic coat of the eye; the cure, therefore, will consist in the perfect division of these structures; while failure will generally result from their incomplete section. This is so obvious that the mere allusion to it may be thought unnecessary; yet experience proves that of all the causes of failure this is the most frequent.

Firstly. As regards division of the muscle, I have been witness to the following errors: the entire muscle has been left undivided, the thickened conjunctiva and subconjunctival tissue only having been cut through. This I saw happen to a child that had long suffered from strumous ophthalmia, and was affected with double convergent strabismus. The surgeon having, previous to the operation, boasted of his extensive experience and unfailing success in this branch of practice, proceeded to operate on both eyes; in one the muscle escaped division altogether, in the other it was only partly cut through. The introductory remarks of the operator led me to expect a failure, and I was not disappointed. On seeing the child a few days afterwards, it squinted as badly as before. Again, the upper or lower margin of the muscle may escape division, or these parts may be cut through, and the centre left undivided. These shortcomings I have seen happen repeatedly, both in the subconjunctival and the

ordinary methods of operating, whether done with the knife or the scissors. As respects division of the muscle with knives, on practising the operation on the dead subject, I found that M. Guérin's knife, which has a convex cutting edge, always divided the centre of the muscle, but was apt, without great care, to leave the margins undivided. Mr. Brooke's, on the contrary, which has a concave edge, insured the division of the latter, but sometimes left the former. For these reasons I adopted a straight cutting edge in my knife, or one very slightly concave. But, irrespective of instruments or modes of operating, a portion of muscle will sometimes be left undivided, and thus mar the success of an operation. Hence the warning cannot be too frequently repeated, never to terminate it without a most careful search with the blunt hook in every direction, a warning the more necessary now that chloroform is so frequently given.

But, secondly, every fibre of the muscle may be divided, and the eye still retain its abnormal position, from inflammatory adhesions. Of this I have met with two kinds; the one yielding, and capable of extension or rupture, by persevering lateral movements of the eyes; the other short, strong, and unyielding, incapable of extension or rupture, and requiring division by the scissors or knife. To the former are owing many of those cases of temporary failure or deferred success which most ophthalmic surgeons must have met with; and some have succeeded in remedying by fixing the eye by means of a ligature passed through the sclerotic end of the divided muscle. At the time of or immediately after the operation, these cases appear to be failures; but the eye subsequently rights itself, so that they ultimately turn out well; nevertheless, they have had considerable influence with many surgeons, in stamping the operation with a character of uncertainty.

A gentleman recently consulted me on account of a double convergent strabismus; he had previously seen other surgeons on the same subject, the majority of whom were adverse to operative proceedings. One frankly confessed he had never done the operation but twice, and never meant to do it again; for in one case he thought he had succeeded—in the other he considered he had failed. But, eventually, this state of things was reversed; the case that he took to be a failure turned out to be a success; and what was at first a success, ultimately became a failure. This evidence of the uncertainty of the operation was not to be resisted, and the surgeon has ever since been a staunch opponent of ocular tenotomy. With regard to the short, strong adhesions before alluded to, they are fortunately rare. An eye thus fixed can never be liberated by other means than their division. A most remarkable example of this kind is the following.

G. F.—, *æt.* 14, came under my care on July 25th, 1857, for congenital paralysis of the third pair of nerves of the right eye. As he was anxious that something should be done to improve his appearance, I determined, in the first place, to bring the cornea into a central position between the two canthi; and as I apprehended there might be some difficulty in getting it and maintaining it there, from the paralyzed condition of the internal rectus, I passed an aneurism needle armed with a ligature underneath the external rectus, and then tied the ligature firmly around the sclerotic end of the muscle before dividing the latter; this having been done, the ligature was brought across the root of the nose, and the eye pulled in the same direction; the intention being to bring the cornea a little inwards, and to fix it there by means of the ligature. This, however, was found to be impossible, as it could not, by any justifiable force, be brought so far; and to maintain it, even equidistant between the two canthi, strong traction was required. I therefore divided the conjunctiva freely upwards and downwards, intending, if necessary, to snip the outer margins of the upper and lower recti; but it was soon apparent that these offered no obstacle to the movements of the eye, and that the real cause of its fixity depended on a number of short, strong, fibrous bands, intimately adhering to the sclerotic coat, and looking so like that structure, that I was once or twice in doubt whether I was not really dividing it; these were situated behind the vertical axis of the eye, and would just admit the point of the blunt hook beneath them. After they were all divided, and not till then, the eye became freely

movable, and could be pulled completely inwards, the cornea was then brought into the desired position, and the ligature, being no longer required, was removed.

Failure of an operation for strabismus may be owing not only to imperfect division of the structures engaged in its production, but to the implication of the opposite eye of the deformity. This was pointed out many years ago by Mr. Elliot, of Carlisle, who, in an excellent paper on the subject in the 'Edinburgh Medical and Surgical Journal,' set forth the grounds on which he was led to this conclusion, and illustrated its truth by many well-selected examples. He went, however, too far in affirming that strabismus can never be regarded as confined to one eye, and the facts on which he relied in support of this doctrine I have elsewhere shown must be differently interpreted. Nevertheless, the discovery of Mr. Elliot, that the persistence of a squint, after division of the adductor muscle of the affected eye, may be owing to the implication of the other eye in the deformity, led to a great improvement in practice; for surgeons had hitherto directed their attention solely to the worse eye, and if division of its adductor failed to rectify the squint, they proceeded to divide other muscles of the same eye, and the result was an exchange of one deformity for another equally unsightly. The inversion was, indeed, removed; but there was substituted for it either a bulging, staring, expressionless eye, looking nearly twice as large as the other, or the inward squint had been converted into one in an opposite direction. It will readily be imagined that results such as these contributed not a little to bring a very useful operation into discredit. The present practice, then, for which we are indebted to Mr. Elliot, is to divide the adductor muscle of the second eye as soon as we have ascertained, by a thorough exploration with the blunt hook, that no mechanical cause is in operation to prevent the rectification of the first eye. But failure of an operation may manifest itself, not only by a persistence of the squint in the eye operated on, but by a transference of the deformity to the other and, apparently, unaffected eye. We operate, for example, on a patient supposed to be affected with single convergent strabismus of the right eye, we divide its adductor, and the eye becomes straight, it is bound up, and the patient sent home; on removing the bandage a day or two afterwards, the eye continues in good position, but the left eye is now observed to be inverted, and the operation gets the credit, or rather discredit, of having brought about this new deformity. Now, it is scarcely necessary to observe, that the inversion of the left eye is not really a new affection, for it was equally strabismic before the operation, though masked, so to speak, by the greater deformity in the right eye; and the disappointment which is always felt under these circumstances is owing to the surgeon not having recognized the doubleness of the squint prior to operating, and so failed to apprise his patient of the probability of a second operation being required on the other eye.

The failures I have hitherto alluded to arise from the operation being imperfectly done, and are therefore apparent at the time, or immediately after the patient has recovered from the chloroform, if that had been given him; but occasionally failure does not manifest itself till some days after the operation has been completed; and in this case it would seem to be due to some of the following causes: The reattachment of the divided muscle too near its original insertion. Thus Lucas affirms that he had several times been obliged to perform a second operation; and that, on these occasions, he was able distinctly to see both the original and the new insertions of the muscle. The same fact has also been observed by M. Lenoir, and is recorded by M. Berard. The muscle again may be united to the sclerotic, mediately, through the intervention of a band of condensed cellular tissue. Lastly, owing to the too free division of the conjunctiva, and the inflammation which sometimes follows, contraction may take place during cicatrization, to such an extent as again to draw the eye inwards. To whichever of these causes the reappearance of the squint may be owing, nothing can now be done except to redivide the shortened structures; but, as prevention is better than cure, I always direct the patient to commence practising lateral movements of his eyes on the third day after the operation. He will not do this violently, for it would cause pain, and

moreover, is not necessary; but I believe it to be perfectly effectual in preventing a relapse; at least, it has never happened in any case that I have operated on; and I am, therefore, disposed to attribute this success to the above practice.

ART. 107.—*A few remarks about Squint, especially External Squint.* By Mr. HAYNES WALTON, Surgeon to St. Mary's Hospital, &c.

(*British Med. Journ.*, Aug. 21, 1858.)

"The class of cases in which the greatest relief can be afforded, is that in which one eye only is turned out, and the vision is but slightly affected; and the less this function is interfered with the more certainly will operative treatment be beneficial. But the great criterion for our guidance in the selection of cases, that is, on which our prognosis should be founded, is the manner in which the eye can be righted, when the other is covered or closed. When I find that it can be brought to the centre of the orbit, and maintained there; and, above all, if it can be so kept for a few seconds after the other has been opened, I strongly recommend an operation. I give equally strong assurances of success, when, without the sound eye being closed, the deformed one can be brought parallel with its fellow, and so kept for a short period.

"During this week I have had the satisfaction of examining a young woman, on whom I operated several months ago, through the recommendation of Mr. Ellison, of Windsor, whose case was of this latter favorable kind. A well-marked squint had existed eight or nine years, and the eye was presbyopic or long-sighted. I operated in expectation of the fullest benefit. An immediate improvement followed, but perfect parallelism was not restored. Now this partial effect is the usual occurrence in external squint; I looked for it, and with patient expectation awaited the completion. At the end of a week, when I dismissed her, the natural position had nearly been attained; and now, after the lapse of four months, I find as great perfection as can possibly be accomplished. I defy any one to tell, from mere appearances, that the eye had ever squinted, or that a surgical operation had been done. There is almost complete restoration of sight.

"Under less encouraging circumstances I often recommend surgical treatment, well knowing that even when the highest result cannot be accomplished, improvement will ensue. There are, however, cases, such for instance in which the eversion is so extreme, and the power of inversion so limited, and with which I have never failed to find a very defective retina, that I should decline to interfere. Three weeks ago I operated successfully, in private, in the presence of Dr. Sieveking and Mr. Farrant, on a young lady of eighteen, who had squinted two years. She could not see to read the largest type with the eye affected, nor could she recognize acquaintances; but she could bring the eye to the centre of the orbit, and maintain it there so long as she directed the sound one to any distant object.

"Concerning double external squint, the results of operations have been less satisfactory, because the circumstances under which I have operated, and which are those that are, I believe, usually met with in the double affection, are less promising. Yet when the eyes are involved in an equal degree, and either can be singly used, and made straight, the double operation may be confidently undertaken. Like the solitary deformity, there are less favorable states, which will yield less perfect ends.

"The last double operation I did at the Ophthalmic Hospital, but a fortnight ago, was no less pleasing to myself, and those of my colleagues that assisted me, than to the patient, a woman twenty-five years old, who said she had squinted since quite a girl. She used one eye at a time, and employed either apparently indiscriminately. She saw only distinctly enough to do coarse needlework, and blundered over small type, but could read large characters. In fourteen days after the operation she could read and work better, and the eyes were as nearly as possible in unison with their movements. Sometimes I detected a very slight inequality, but so slight that it was not likely to be remarked by a casual observer.

"I operate in this manner: Having retracted the eyelids with the double spring wire retractor, I make, just over the insertion of the external rectus, a short vertical slit in the conjunctiva and the conjunctival tissue, which latter may be so thin as scarcely to be recognized, or so dense as to demand attention and carefulness in cutting through it. Then I introduce the blunt hook below the muscle, which I secure, and sever close to the sclerotica. I complete the process by bringing the edges of the conjunctival wound together by one or two sutures; if a single one does not effect the desired adjustment, I apply a second. This does not cause the slightest irritation, and possesses all the advantages that are to be got from the accurate closing of incised wounds, as compared with tearing them open. I do not practise the so-called subconjunctival division of the muscle, as suggested by Monsieur Guérin for internal squint, by which he hoped to overcome the dropping of the caruncle, and other defects arising from extensive dissections at the corner of the eye, so common at that time."

ART. 108.—*Case of Anophthalmos.*
By Mr. POLAND, Surgeon to Guy's Hospital.
(*Ophthalmic Hospital Reports*, No. 4, 1858.)

Some doubts whether, in these cases, absence of the eyes truly exists, whether there is over a real want of development or non-formation of the organs themselves, have been raised. Thus Walther* considers there is no true anopsia without acephala; he advances that it is to be regarded rather as a degeneration of the eye, such as is generally found, viz., a simple, red, undeveloped cellular mass, and would class these cases under the head of microphthalmos. But we have undisputed details of dissection, distinctly proving, not only absence of eyes, but also absence of optic nerves; thus at once determining that anophthalmos must be retained among the malformations.

The following case is one of absence of both eyes, as far as external evidence could be given. The child lived for some time, and was then lost sight of, so that in the event of death all chance of further investigating the contents of the orbit are frustrated.

CASE.—Some eight or ten years ago, I was called upon by Dr. Lever to examine a new-born infant respecting some malformation about the orbits and lids. The child was a male, born at full term; he was plump, well developed, and presented a perfectly natural conformation in every respect, with the exception of the lids. The orbits appeared somewhat smaller than usual; there were eyebrows over the superciliary ridges; there were no eyelashes, and the upper and lower lids were united along the whole extent of their margins, the union being marked by a reddish line; the contents of the orbits had a sunken appearance, seemed diminished in bulk, and the lids flattened.

A small aperture was made at the outer canthus, and a director was easily introduced along the inner side of the lids towards the inner canthus; the lids were then freely divided along the commissural line, and when separated, they were found to have but little adhesion to the contents of the orbit; there was no appearance of an eye or of a shrunken globe, for there was nothing to be seen or felt but an immovable slightly raised mass of thickened conjunctival membrane; an incision was made into this, but it only exposed reddish areolar tissue; there was no evidence of any muscles. The head appeared to be perfectly natural. The child was seen after three or four months, and then did not seem to differ from other children in general health and performance of natural functions. There were three other children of the family, but all perfectly natural. The mother persisted in attributing the defect to a severe fright she sustained when in the fourth month of her pregnancy; she was suddenly attacked by a dog who had lost one eye, which had a very ugly appearance; it made a great impression upon her at the time, and for some days after.

This case gives rise to many interesting questions, but unfortunately we are

* *Lehre von den Augenkrankheiten*, Band ii. s. 242.

almost forbidden to draw any conclusions, as we have no positive proof that in this case there are no rudimentary organs; the eyes might have been fully formed and attained their normal condition up to the fourth month, and then have gradually ceased to grow, and become lost in the areolar tissue of the orbit. On the other hand, there may be no optic nerves, and no eyeballs developed at all. Thus, then, on the subject of mental impressions, it is impossible to draw any deduction, for if there be no eyes and no optic nerve, an actual non-formation, the mental impression could have had nothing to do with it; if the contrary, then it is probable it may have had. There cannot be a doubt as to these effects of mental impressions; they have been ably argued, and many cases have been recorded.

ART. 109.—*On Microphthalmos.* By Mr. WHITE COOPER, Surgeon-Oculist to St. Mary's Hospital.

(*Ophthalmic Hospital Reports*, No. 3, 1858.)

For some years Mr. Cooper has had under his care a family, three members of which present marked examples of this rare malformation.

CASES.—Mr. and Mrs. S—, the parents of the children whose case I am about to relate, are healthy, well grown, and free from ocular defect; nor has there been any known defect in the eyes of the ancestors on either side.

Mrs. S— states that when between four and five months pregnant with her first child, she met a man in the street whose eyes were so small and so peculiar that her attention was forcibly arrested, and, to use her own words, "this man's face was in my thoughts night and day until my confinement." Whether this really exercised any influence on the children afterwards born is an open question.

James S—, the eldest child, is now twelve. His height, 3 feet 11½; he has never had anything like a set of teeth; a few imperfect teeth have appeared, but soon dropped out; at present he has three ill developed stumps. His frame is feeble, he is subject to headache, and is seldom free from discharge from his ears.

His eyes present the following peculiarities: the globes are extremely small, each palpebral fissure being but three-fourths of an inch in length; the eyes are in constant irregular motion, and he experiences great difficulty in fixing them; the cornea in each is little more than two-tenths of an inch in diameter; the iris a mere irregular strip of a hazel color in parts altogether deficient, and without the slightest action; the lenses are clear, but there is an opaque spot on the anterior capsule in each eye.

When looking at an object, as the page of a book, he holds it close to his face very obliquely, turning his head from side to side with extraordinary contortions of the features; he always knits his brows, and looks from under them, being annoyed by light. His sight is decidedly dull, he makes out word by word, and sees distant objects very imperfectly.

The second child Mary Anne S—, is now nearly nine. She has no teeth, those which have occasionally appeared having all dropped out. The condition of her eyes is very similar to that of her brother's. In her left eye the iris is entirely deficient along the inner border, and merely hazel-colored shreds appear elsewhere; similar irregular shreds exist in the right eye; there is haziness of the external half of the right cornea; the left cornea is clear. The lenses appear clear, but an opaque patch is visible on the capsule in each eye. She frowns less than her brother, and holds objects at three inches' distance.

This little girl was examined two years ago by my friend Professor Tyndall, at the Royal Institution, and he reported as follows: "When the spectrum was displayed before her, she ran her fingers promptly over the colors, and named them correctly. The phenomena of iridiation presented themselves to her as they did to me; an incandescent platinum wire became thicker as she receded from it. As far as I could judge, the retina was perfectly healthy. I placed her within a foot of the coal-points of the electric lamp, and establishing the current, allowed the full splendor of the light to fall upon her

eyes. She never even winked, but looked steadily into the light, and stated that she did not feel the slightest inconvenience. This, perhaps, was due to the partial opacity of the humors of the eye; the position of the iris in her case was marked by a few gray spots, and the pupil had no definite boundary."

Elizabeth Jane S—, the third child, is now seven. Her eyes are in all respects smaller than those of either of the others; the iris is deficient along the upper border in each eye, and that which exists appears merely as a grayish irregular strip. There are central opacities in the anterior capsules.

She has six ill-developed teeth in the upper jaw, and seven in the lower.

Her sight appears to be the best of the three; she frowns but little, and looks directly at a book, seeing well at about five inches.

Happily, the influence, whatever it might be, which led to this singular arrest of development in three children, exhausted itself with them; for there is a fourth child, a boy, one year and four months old, who is, in all respects, healthy, well-developed, and perfectly formed. The eyes are of full size, and he has already more perfect teeth than all the other children together.

These cases present in a marked degree the rarest form of microphthalmos, that in which irideremia, or congenital deficiency of the iris, is co-existent with the miniature dimensions of the globe; and we cannot but be struck with the experiments performed by Professor Tyndall, where the blaze of the electric light was borne by the girl without inconvenience, though there was no pupil to protect the retina from its influence.

Eight years have elapsed since I first saw the two eldest children, whose eyes were then really like dolls' eyes; and although a certain amount of growth has taken place in them in accordance with that of the frame, the microphthalmic character has been completely maintained.

In every case of double microphthalmos which has fallen under my notice, there has been imperfect dental development; and the same holds good in numerous cases of congenital cataract. The teeth in such cases are small, jagged, discolored, and soon decay. The cause which impedes the due development of the globe of the eye, or of the crystalline lens alone, influences the growth of the teeth. Nor does it rest there; for many of these children are stunted in stature, bow-legged, or knock-kneed, of wayward, irritable temper, and not unfrequently obtuse in intellect.

The paper also contains some other cases and remarks elucidatory of the causes of microphthalmos.

ART. 110.—*Six Cases of Cataract in one Family.* By Mr. STREATHFIELD.

(*Ophthalmic Hospital Reports*, No. 3, 1858.)

CASES.—On the 13th of February, 1858, I had an opportunity of seeing a family of the name of F—, living near Bury St. Edmund's, of which five children and their mother had double cataracts. It did not appear that any of the paternal or maternal relatives had been similarly affected. The grandmother, who was present, first observed the deficiency of vision, and the defect in the eyes of her child, the mother, when she was a year and a half old, and in the second generation, at various ages, *later in life, according to the seniority of the five children*; thus the eldest for six years, and the youngest for a year and a half, are said to have had good vision. There was not in either of the cases any history of short-sightedness before the defect was evinced, and after this time, *in a month to six weeks*, in either of the cases, the child became so blind as only to distinguish light objects. The six patients have all gray irides, and hair of a very light brown—in the younger children almost colorless. The mother has two sisters and a brother who have brown irides and good vision. All her children much resemble their mother in appearance, and all of the family, including the father (who is a laborer), are of a healthy, sanguine disposition, and have no other defects perceptible. In neither of the patients are there any corneal opacities, or unsteady movements of the eyes.

The Mother.

Ellen F—, æt. 33, has been incompletely operated on; the right pupil is occupied by remains of lens, and a wide margin of yellowish, earthy-looking

deposit; the left is in the same state, but the outer half of the pupil is adherent to the lens capsule. With this eye, which is slightly turned in, she can only distinguish a light.

Her Children.

1. Laura, æt. 16; her sight failed her when she was six years old; has been operated on—remains of lens capsule.
2. A boy, who died at the age of five years, without any known defect of the eyes or of vision.
3. William, æt. 11; has been operated on—remains of lens capsule.
4. James, æt. 9.
5. Eliza, æt. 7; read small print with facility, at an average focus; the eyes examined externally, and with the ophthalmoscope, showed no defect whatever.
6. Henry, æt. 5.
7. Ellen, æt. 3.
8. Mary, æt. 8 months, intelligent; the eyes, examined externally and with the ophthalmoscope, showed no defect whatever.

Of these children, 5 and 8 were as much like the mother as the others were; and of the patients 4, 6, and 7 (those which had not been operated on), the cataracts were all of a gray opalescent appearance, most confirmed in the eldest, and least in the youngest. In this case, No. 7, the chief opacity was at the lower part of each lens, and left at the upper part a definite crescent, of the less opaque portion, largest in the right eye, which was said to have been latest affected. In No. 6 the cataracts were equal, not striated, and the general opacity was as great as that of the lower part of the lenses in the last-mentioned case, and greatest at the central part of each lens. In No. 4 the lenses were centrally most opaque, as in the two other cases. In this they were irregularly striated, and an additional peripheral opacity existed posteriorly in the right lens, and in the left posteriorly, and extending in front as a defined, superficial margin, to the deeper striated portion.

ART. 111.—*The Influence of the Cervical Portions of the Sympathetic Nerve and Spinal Cord upon the Eye and its Appendages, illustrated by Cases.* By Dr. OGLE, Assistant-Physician to St. George's Hospital.

(*Proc. of Roy. Med. and Chir. Soc.*, June 22, 1858.)

The main object of this paper is the application to clinical medicine of the various experiments which have from time to time been performed, as showing the influence possessed by the sympathetic in the neck and the upper part of the spinal cord upon the iris and upper eyelid. Experiments and dissection as regards the lower animals have shown that the curtain of the iris, containing as it does two sets of muscular fibres, a circular set by which the pupil is contracted, and a radiating set by which it is enlarged, is under the domination of two separate and distinct sources of innervation. The third cranial nerve is found to control the circular or contracting fibres, and the sympathetic, by virtue of communications with the lenticular ganglion, is found to control the dilator or radiating fibres. Hence, if the influence of the third pair be destroyed, the pupil becomes dilated, inasmuch as the dilator fibres, those presided over by the sympathetic, are unopposed; again, if the influence of the third cranial pair be left unimpaired, and that of the sympathetic be destroyed by section or extreme pressure, then the pupil becomes contracted. The author dwelt upon the history of the various experiments upon which the above statements are made, and also upon those from which it is concluded that in certain parts of the spinal cord resides the power or influence which acts upon the dilator fibres of the iris, passing to that structure through the sympathetic *via* the roots of certain cervical and dorsal nerves. From these latter it is apparent that the same paralysis of the dilator fibres of the iris which follows section of the sympathetic in the neck, follows also the severance of such fibres as connect the sympathetic with the spinal cord, as also the section or destruction of the spinal cord itself in certain parts. Accordingly, it might naturally be expected that any cause of extreme pressure acting upon the various portions of the nervous system before alluded to would, as in the various experiments before

adduced, cause a contracted state of the pupil on the side corresponding to that on which the extreme pressure existed. And thus it was that Dr. Gairdner, of Edinburgh, first sought to explain those cases in which, along with an intrathoracic aneurism, a contracted state of the pupil coincided. These cases were detailed, several of them not having been hitherto recorded, and to these others were added from the author's own observation, as well as some from other sources. Cases were next given in which pressure from aneurism upon the sympathetic in the neck had produced contraction of the pupil. In the third place, instances were adduced in which extreme pressure from other causes than aneurism had produced a like effect upon the pupil, as in the case of enlarged glands, carcinomatous deposit, &c. In the fourth place, bearing in view the intimate connection between the sympathetic main branches in the neck and the cervical part of the spinal cord, he drew attention to several cases in which a contracted pupil had been observed in injuries of the spinal cord itself.

But in addition to a contraction of the pupil as brought about by section of the sympathetic, spinal cord, &c., as before spoken of, experimenters have also found that irritation or galvanism of the same parts of the nervous system will bring about a dilatation of the pupil, and that this dilatation may be effected even when section or extreme pressure has already given origin to contraction of the pupil. Accordingly, in these physiological facts, an explanation was sought of certain cases in which pressure from aneurism, diseased products, &c., appeared to produce, not a contraction, but a dilatation of the pupil in man; and he instanced, in the fifth place, several cases in which the pressure from various sources was inestimably so much in extreme as to be, in fact, a source of irritation or stimulus, acting in the same way as it was found in animals, that any stimulus, mechanical, chemical, or galvanic, would act upon the sympathetic. In no other way could he explain the dilated state of the pupil which existed.

But besides the above-described effect upon the pupil of the eyes, in enumerating the various experiments in which a sympathetic, &c., was divided, special attention was drawn to a dropping of the upper eyelid, or ptosis, which on several occasions was observed. This phenomenon was explained on the supposition that along with the sympathetic fibres to the iris, those to the third cranial pair are also paralyzed, and hence the levator of the upper eyelid, which is supplied from the third pair, is deprived of power to a greater or less degree. One or two cases were also adduced in which ptosis of the upper eyelid was observed in connection with pressure about the neck, from aneurism or other sources. He offered the same explanation of the convergent strabismus which, in the hands of certain experimenters, was, along with other results, found to depend upon a division of the sympathetic cord in the neck. He supposes it to have existed by reason of paralysis of such fibres (in several animals, five or six in number) as pass up to join the sixth cranial pair of nerves, by which the power of this muscle becomes weakened, and its action counterbalanced by the internal adductor muscle.

ART. 112.—*Vascular Tumor of the Orbit successfully treated by injecting tannic acid.* By Mr. HAYNES WALTON, Surgeon to St. Mary's Hospital.

CASE.—A lady, æt. about 20, was sent to me in the summer of 1856, by Mr. Square, of Plymouth, for my opinion on a vascular tumor in her left orbit. The eyeball was prominent, and turned slightly upwards and outwards, restricted in motion, and incapable of being directed inwards. The lower eyelid bulged, and was slightly discolored, especially towards the nose.

By turning down the tarsal margin, there was exposed a growth with a definite outline, having the appearance of a congeries of veins attached to the eyeball, and which was evidently only a part of a larger mass. Pressure emptied it, the act producing pain, and the redistension was very slow. The chief subjective symptoms were these: Pain on the slightest exertion, and in extremes of temperature, and during the catamenia. Inability to lie down, because of unpleasant sensations in the orbit and head. Vision nearly extinct. The affection was congenital. Very soon after birth slight swelling of the lower

eyelid was noticed. At five years of age, on account of increased tumefaction, Sir Benjamin Brodie was consulted, and according to the statement of the patient's mother, he did not consider it of any consequence. At the age of thirteen, it attracted attention generally, and besides being larger, there was a bluish tint of the integument. Reading or writing for some hours always caused temporary enlargement, and heightened the color. Messrs. Lawrence, Tyrrel, Travers, Dalrymple, and others, were then seen; and while they differed in opinion respecting the nature of the malady, they agreed in their advice, which was to leave it alone, as there were no very urgent symptoms and but slight disfigurement. After this, Mr. Square, at the urgent request of the patient, and with no idea of curing the disease, but only of lessening deformity, applied a ligature to a large tortuous vein which ascended perpendicularly from the margin of the orbit to the edge of the cornea. This operation was successful as far as it went, but excited very severe inflammatory action. I learn besides, from this gentleman, that our patient had a small *nævus* under the tongue and one on the thigh, both of which he removed; also, that many years ago, he successfully treated her brother for a varicose state of a single vein of the conjunctiva.

There was now more decided increase from year to year; the sight got very defective, there being often double vision, and the commencement of the other symptoms that I have described as existing when I was applied to.

I made a very careful examination, and came to the conclusion that the tumor consisted in chief of dilated and tortuous veins. I did not forget to scrutinize its relations, as on them, I was aware, should depend in a great measure the admissibility of doing anything, and not less the measures to be employed. I believed it was confined to the orbit. I had suspicions of prolongation into the lachrymal duct, but the integrity of the excretory lachrymal apparatus was not consistent with such a theory.

The position of the eyeball, often a means of determining the nature and situation of a tumor, induced me to think that it did not pass back into the orbit, at least not far back, but was limited to the inner and anterior part. Ultimately I recommended treatment. Further advice was sought. Among those applied to was Mr. Bowman, who alone coincided with me in recommending an operation. The lady was then placed under my care. It may be well to mention here that she was most desirous that some proceeding of a radical nature should be attempted, and had her wish not been gratified in England, it was the determination of her friends to proceed to the Continent.

I resolved to resort to the method of injection, and thereby to endeavor to produce coagulation of the contents of the tumor. The perchloride of iron seemed to be the most appropriate agent, and I had almost determined to use it, but calling to mind some instances of sloughing that I had seen follow in its employment in *nævi* and other vascular growths, I hesitated, because, although in the instances alluded to there was no bad result, and the severe local action was of no consequence on the trunk and on the limbs, in the orbit, on account of the close relation to the brain and its meninges, one of which communicates with this cavity, the greatest caution must be exercised lest the cerebral mass be effected. Not wishing, however, to relinquish this remedy, as it appeared otherwise suitable, and I had faith in its potency, I suspected that if used under certain precautions and in minute quantities, for instance, with the screw-piston syringe, it might be safe. I then endeavored to ascertain its effect on blood out of the body, especially the quantity needed to produce coagulation, and when I found that a few drops rapidly and entirely coagulated an ounce, I rejected it as a matter of prudence, as I considered its action much too powerful.

I then experimented with a solution of lactate of iron, but I found that it was not capable of producing coagulation, which shows that the coagulating property of the muriated tincture is not due to the iron, as is generally supposed, but to the acid. While in search of an agent that could be depended on, Mr. Taylor, of Vere Street, suggested tannic acid to me, and it seemed to fulfil all that was needed. It did not possess caustic properties, and readily influenced blood, destroying the color and reducing it to a sort of granular condition.

These experiments were done in the presence of my friend, Mr. William Adams.

Having filled an Anel's syringe, prepared with the coarse pipe, with a saturated solution of tannic acid, I proceeded to operate, being assisted by Mr. Squire, Mr. Adams, and Mr. R. Taylor, one of my colleagues at the Ophthalmic Hospital. I made a snip in the most prominent part of the tumor; blood escaped at once and very freely. As quickly as possible I threw in the injection, emptying the syringe. The cessation of hemorrhage, and the appearance of the orifice, proved that coagulation had ensued, and the solidity of the tumor verified the extent of the action. This was on the 14th of October, 1856.

There was much general depression and prostration, with frequent retchings for twenty-four hours; but this was due to the chloroform, not however from any careless administration, as Dr. Snow was in attendance. The local effects were cedema and closure of the eyelids, serous chemosis of the conjunctiva and more prominence of the eyeball, slight swelling and redness of the integuments at the side of the nose and the upper part of the cheek. These increased for a few days, and in the highest stage were accompanied with much headache and fever, pain in orbit, and the appearance of spectra, prismatic colors and coruscations. As much of the pain was confined to the tumor, which now, five days after the operation, was very much enlarged, soft, and very dark—indeed, slate-colored, as was also the surrounding conjunctiva—I incised it, but no fluid escaped, although some relief was obtained. But on the following day, a sepia-colored discharge commenced. The eye was motionless. There was no perception of light, and the pupil was fixed, as it had always been. The progress two months later is told in the partially restored power of the muscles, especially the lateral and lower recti, reduction of the ocular protrusion, and of the size of the tumor. The colored discharge continued.

Later an abscess formed, and pointed just under the margin of the lower lid, from which I evacuated healthy pus.

November 20th.—The movements of the eyelids were quite restored. All chemosis had disappeared. Less of the conjunctiva was discolored, but that yet affected as dark as ever. There was still discharge from the old incision in the tumor, but it varied in quantity, some days there was scarcely any, and the color was less dark. Several times pain and local irritation preceded the escape of fibrinous clots, about the thickness of a crow-quill, and varying in length from a quarter to half an inch; and twice a small cretaceous mass, about the size of a mustard-seed was discharged.

I watched my patient until the middle of January. There was no longer any secretion from the seat of disease, and all trace of the tumor was lost. The oozing from the abscess that I opened had also ceased, and but slight coloration of the conjunctiva remained. The eyeball had fallen back nearly to the natural plane, but its movements were not perfect; it could be directed downwards and outwards, naturally, but not turned fully inwards; nor could it be raised to more than half the proper extent. She could lie in any position, and all unpleasant sensations were lost. Vision did not return. I was not surprised at loss of power in some of the orbital muscles, and of paralysis of the retina. Both were partially manifested before treatment, being directly induced by the morbid growth, and were easily increased by the inflammation and tumefaction of the orbital tissues. Similar effects may ensue when the cellular tissue of the orbit is highly inflamed from any cause, as I know by four kindred examples.

I resolved not to publish my operation till time had tested its efficacy. A year has elapsed since its execution. There is not the least trace of the disease, nor is there evidence, except under close inspection, of the exercise of practical surgery. The tears are conveyed away naturally. The eyeball moves more freely than before the operation. My patient and her friends are highly pleased with the result. I can, therefore, with proper authority, speak of the result as a cure, and recommend a similar procedure under like conditions.

ART. 113.—*Case of Nævus in the Left Cheek cured by the Injection of Tannic Acid.*
By Dr. QUINLAN, Surgeon to St. Vincent's Hospital, Dublin.

(*Dublin Hospital Gazette*, Sept. 15, 1858.)

CASE.—Eliza B—, æt. 9 months, has a subcutaneous nævus on the left cheek, about midway between the angles of the mouth and jaw. Her mother states that she observed this immediately after birth; it was then almost imperceptible, but has gradually increased, until it is now somewhat larger than a shilling. It can be almost emptied by pressure. The skin covering it is healthy. Two veins of considerable size lead from it.

Saturday, August 21.—I introduced a cataract-needle into the upper portion of the nævus, and broke up its structure. I then inserted a very fine platinum canula, and, by means of a small platinum screw-action syringe, constructed for this purpose, injected a scruple of solution of tannic acid, of the strength of a drachm of acid to the ounce of distilled water. I repeated the same manœuvre in the two other most prominent parts, until the nævus became well distended. Coagulation quickly ensued, as was shown by the almost stony hardness which the nævus assumed.

Eight, P. M., same day.—Left side of the face considerably swelled; nævus somewhat inflamed. Ordered the part to be fomented with cloths wrung out of hot water. To take a little hydrarg. c. cretâ.

August 23d.—The swelling of the face is quite gone down; the nævus appears to be undergoing a kind of chronic inflammation; the epidermis over it is desquamating.

Friday, September 3d.—The site of the nævus is occuppid by a tumor resembling the induration left after a boil. There is no trace of dilated vessels. The two veins before alluded to have almost disappeared.

September 7th.—The induration appears to be undergoing gradual absorption; the three openings made by the canula are healed up.

ART. 114.—*A case of Deaf-dumbness of more than twenty years' standing, greatly benefited.* By Mr. TOYNBEE, Aural Surgeon to St. Mary's Hospital.

(*Proceedings of the Royal Med. and Chir. Society*, June 23, 1858.)

CASE.—Miss L. L—, æt. 23, consulted me in the early part of the year 1857. Her history was that, as a child, she had heard only some loud sounds, and was quite deaf to all conversation, her means of comprehending what was spoken being derived from watching the movements of the lips; and the sound she uttered appearing to be the result of her attempts at imitating the movements she saw. Upon examination, I found that the voice was heard when spoken into the ears. I recommended counter-irritation, and the use of a long elastic tube. At first, she could bear only from three to five minutes at a time. In a fortnight there was a decided improvement in the hearing power, and the ears began to experience a painful sensation when she was spoken to too loud. To use the words of her sister (who devoted herself to the poor patient in a way that only a sister or parent could), "during the third week the improvement was wonderful. This was not so perceptible with the tube, as in her hearing generally. Everything was so much louder to her, but not more distinct. The noise in the street now quite annoyed her, she called it dreadful, although when we arrived in town she did not notice it." She left me at the end of a month's treatment, and I directed her to be spoken to daily, but only by words of one syllable, and she was to repeat these to herself. Then very simple sentences were spoken to her; these she heard, and then she was spoken to through the tube in the ordinary way of conversing. She heard and replied by speaking through the tube herself, so that she should be able to hear her own voice and modulate it. Her sister writes: "In October, 1857, she spent three weeks on a visit, and there she was seen by people who saw her first before she came to consult you; they said they should not have believed it possible for her to have improved so much in hearing and articulation; her mind, too, had come out so. During the three weeks she was at Harrogate, she had a

complete holiday (*i. e.*, the tube was not used), and when she came back, the hearing had not retrograded generally, but she did not hear so well through the tube. Since her return from Harrogate she has gone on steadily with the use of the tube. Latterly (this was written on February 2d), for some weeks, I have talked through the tube daily an hour divided into three or four intervals. Two or three times, when much amused, she bore its use without fatigue half an hour at a time, and she said she could have borne it longer. Even when she has had a difficulty in comprehending what was said, I have never allowed her once to see my lips while talking through the tube. We spelt the words which she could not make out, and she never once failed to find them out by the aid of the ear alone. One afternoon she could not understand a single word of sentences she had distinctly heard in the morning. By degrees, however, she made out a word here and there, and in a few minutes heard everything I said. She had been absorbed in writing a letter till a minute or so before the use of the tube. Several times now, I observed that she heard far more easily at the end of our talk than at the beginning. To her best ear I am obliged to talk in a high treble, not loud. The left ear requires a deeper, stronger voice. Great distinctness and slowness are necessary; a monotonous tone suits her best. The final consonant must be strongly uttered. She says she now hears them, but she never did so before; she notices the difference of touch in persons playing on the piano, and can often understand much that is said without seeing the mouth. A few days since she exclaimed, 'You are talking French.' Lately, she has gained many new phrases, trying to apply those she learns in conversation, very often making wonderful mistakes. Not long ago she said, 'that tree is a great assortment for the birds,' meaning, 'resort for.' At another time she said, 'I hope you will not think me liberty,' meaning, 'I hope you will not think I take a liberty.' She began to read half an hour a day; it was hard work, although the book was written for a child. As hearing improved, articulation and intelligence improved; and, lately, I have often wondered at the change. We increased the reading to an hour, my sister constantly saying, 'I feel as if something were coming to my mind,' and expressing surprise that she could understand what she never could comprehend before. She now quite distinguishes between *my* mode of pronouncing and her own; and we never had the tube while reading to her, as I knew its use would have distracted her thoughts from her book. Occasionally, when the word was a very difficult one, she made it out, and then had the tube used to convince her of her correctness. Numbers of people have remarked my sister's improvement. A lady saw her the first time in the beginning of August last, and she saw her no more till November, when she said to me in astonishment, 'I could not understand a word your sister said in August, now I can understand everything she says.' When I began your plans, I had to ask my sister as a favor to myself, to allow me to talk to her sometimes; she was annoyed, and then did not hear so well. Now, things are very different. She very often proposes the use of the tube, and says, she wishes you could know what we had done for her."

ART. 115.—*On Hare-lip operations.* By M. GUERSANT.

(*Gaz. des Hopitaux*, No. 24, 1858; and *Med.-Chir. Rev.*, July, 1858.)

"The more operations for hare-lip I perform," M. Guersant observed, at the Society of Practical Medicine, "the more I am convinced, 1. That in operating for simple or double hare-lip, at any age, the result is almost always favorable. 2. That the operation for complicated hare-lip, at whatever age it may be undertaken, is only exceptionally successful. 3. That in the operation, whether for simple, double, or complicated hare-lip, we almost always fail when a complication supervenes in the shape of disease of the skin or other part." He added that he generally operated early, but waited until six weeks or two months after birth, being able by that time to judge whether the child is lively and well nourished, and also to have it vaccinated, and thus obviate a mischievous complication. In support of these opinions, it is to be observed, that some cases of simple hare-lip operations practised a few days after birth have

failed because the infants, unable to nourish themselves, fell into a state of languor and died. Moreover, a considerable number of children die within the first two months, even without having undergone any operation. If this is true of the operation for simple hare-lip, it is still more so with regard to complicated hare-lip; for in the latter, the mortality is greater in the earliest period of life than it is in simple hare-lip. Moreover, having to undergo a more laborious operation, these infants lose more blood; and as in some of them the operation has to be completed at several intervals, it is better to wait till they have attained the age of a year, when they are better able to support it.

Great care must be taken both before and after the operation as to the presence of other children who have or have just had any of the diseases of infancy, as hooping-cough, scarlatina, measles, &c.; affections likely to cause the failure of this, as well as of all other operations performed on infants. A child thirty-two months old, with a double harelip, had been vaccinated by M. Guersant a few days before he intended performing the operation, and was carried to the door of one of the wards in which scarlatina prevailed, in order to furnish lymph for some of the children in the ward. The next day it was operated upon on one side only; but two days after it exhibited scarlatina, union failed, and the child died.

For some time past, M. Guersant has employed separate points of suture, having found that they less easily cut through the lips of the solution of continuity than the twisted suture. In the above case, although union was prevented by the scarlatina, the two points of suture being divided at the end of a week, it was found that the lips of the wound had not been cut through by the double threads which were employed.

ART. 116.—*On some severe forms of disease arising from retention of Decayed Teeth.* By Mr. CLENDON, Surgeon-Dentist to the Westminster Hospital.

(*British Med. Journal*, June, 1858.)

After describing very graphically the ordinary effects of diseased teeth, Mr. Clendon proceeds to speak of some of the more extraordinary effects—disease of antrum, fungoid tumors of the gums, facial neuralgia, facial paralysis, and spasm in certain forms, &c. These remarks are illustrated by cases, and of these we take one as well worthy of notice.

CASE 7.—*Abscess and paralysis of the face.*—R. W.—, *et.* 34, harness-maker, gave me the following history: "In January last (1857) I felt pain in the ear, which began to discharge; then an abscess formed in front of the ear; this was lanced at the Northern Dispensary, and it continued to discharge freely for a week or more. Having lost the hearing on that side, I went to the Ear Infirmary in Soho Square for two months, without any benefit. Discharge of the abscess through the ear continued until December. I then first began to feel severe pain when I attempted to move the jaw; this was followed by inability to close the eye, or to put out my tongue. In that state I came to this (the Westminster) hospital, in January last, and was admitted under the care of Dr. Reynolds."

From the constant pain and tenderness on pressure, Dr. Reynolds, suspecting some local cause of irritation, sent him to me, in order that his mouth might be carefully examined. When I first saw him, there was great difficulty in opening his mouth; severe pain in the condyle when he attempted to move the lower jaw, and on pressure being made in that direction; he was unable to close the eyelids, to contract the orbicular muscle of the eye, to inflate the cheek, or to protrude the tongue beyond the front teeth, gasping when he endeavored to do it. On attempting to whistle, the mouth and nostrils were drawn to the opposite side; the external meatus of the ear was so contracted that a fine probe only would pass: and through the orifice, on pressure being made on the cheek, pus oozed out. He had no toothache, nor decayed tooth that he knew of; but I found the teeth on the affected side incrustated with tartar, from want of use. This to me is always a suspicious circumstance. He attributed it to pain in the hinge of the jaw in eating, and to his inability to remove the food from the cheek, owing to the paralysis of the muscles. On passing a

curved instrument under the gum between two molar teeth, he felt some pain in one tooth; and, repeating the experiment with the same result, I determined to remove it. There was a cavity in it, quite out of sight, and almost out of reach, through which, I have no doubt, air had from the first freely passed, and given rise to all the mischief. On washing out the mouth, he at once expressed a sense of relief; found he could open his mouth easily; and to the surprise of all present, he could protrude his tongue to the full extent without any apparent effort, and also partially close the eye. The relief might be described as instantaneous. The inability to contract the muscles of the mouth, to inflate both cheeks, and raise the angle of the mouth, still continues; and, although it is asserted that in the severest lesions the nerves do not slough, I nevertheless expect some branches of the *portio dura* have been destroyed in the long-continued abscess, and that loss of power in some of the muscles, as well as of hearing, on that side, are permanent and irremediable.

The paper concludes with the following practical remarks:—

"Now, in all these cases, whatever the symptoms, and whether the pain be severe, mitigated, or altogether absent, there is throughout but one indication—namely, an effort of nature to get rid of the offending body, which we, if we would endeavor wisely to assist and second instead of to counteract her, ought at once to seek out and remove.

"But here is the difficulty. The patient has a dread of the operation, and will run all risks, submit to any other course of treatment, or any amount of suffering, rather than undergo it. An old lady of seventy once told me that, from her earliest recollection down to the period when the last remaining tooth had worked its own way out, she had seldom been free from pain for a month together; and yet she could never summon courage to submit to the operation of extraction: in her own emphatic words, 'she felt she must die first.' But in severe cases, where there is great tenderness or pain, or where the operation would be more than usually painful and difficult to perform, chloroform will deprive the patient of all excuse, and prove a great blessing. It allows the practitioner to open and examine the mouth carefully, perhaps for the first time; and then, at his leisure, to seek for and remove all that he deems necessary. It is true that, owing to some few casualties, which from the first I anticipated, some persons have as much dread of chloroform as of the operation itself; but my experience in some 3000 cases, taken indiscriminately, and extending over a period of more than ten years, satisfies me that, although, like all powerful agents, it is dangerous if misused, it can always be given with safety if administered with proper care. I can truly aver that, until the other day, when, in a case of protracted operation at the shoulder-joint, much blood being lost, syncope came on while the patient was fully under the influence of the chloroform, but which was detected and counteracted on the instant, I have not had one case which, during its administration or subsequently, ever gave me a moment's uneasiness.

"Often, however, there is another difficulty; and that is on the part of the practitioner. Perhaps he examines the mouth, and ascertains the cause of the pain to be the root of a tooth broken off and buried deeply in the gum, or he finds a number of roots clustered together, presenting no tangible surface for the grasp of an instrument, and difficult to reach even with an elevator. He sees they ought to be removed, but shrinks from the task; to use a familiar phrase, 'he does not like the look of them;' and therefore recommends some palliative mode of treatment, and patience. In point of fact, from not feeling quite equal to the emergency, or wanting confidence in the use of the instrument, he is reluctantly compelled to leave his patient to an indefinite period of suffering and perhaps to some of the evil results I have already pointed out. This abnegation of his legitimate functions, arising purely from want of confidence in himself, has notoriously had the effect of driving this department of surgery into the hands of unqualified and often uneducated practitioners, styling themselves *surgeon-dentists*, and affecting to consider the mouth as their own legitimate domain, to which the surgeon has no claim. But, whatever the cause, the result is the same; for now the old story is repeated; the cheek swells, pus forms, and there is either a circumscribed or diffused abscess. This is poul-

ticed, to promote absorption, or to assist resolution, as the case may be. Now, I cannot too forcibly insist that fomenting the cheek under such circumstances is the most erroneous step of all; for, should the abscess point outwardly, there will be a sinus from which pus may continue to flow, perhaps for a year or more, as long as there is any root or carious bone to exfoliate, leaving, when healed, a deep pit or cicatrix in the cheek, which disfigures the patient for life. This is not a pleasant alternative for a man, but a very serious drawback to a woman, in the preservation of whose good looks we all feel a natural interest. The tooth should be removed, when the pus will immediately flow through the aperture made; or, failing that, hot water, or hot bread and water fomentations, should be used in the mouth; and, as soon as possible, the abscess, however deeply seated, should be opened freely through the mucous membrane, and the pus allowed to escape *into the mouth*.

"In conclusion, I think no one will deny that it should be a part of a medical man's education to know how to deal with such cases; and I trust that all you who have kindly gone with me through these observations will have felt their interest and importance; and, seeing how much suffering and mischief may spring from so small a cause as a diseased tooth, you will sympathize in my earnest wish to obtain the diffusion of more enlightened views on this much neglected, and therefore little understood, department of surgery. Every day confirms my experience of its necessity, and strengthens my desire to see it accomplished. Many complaints that come under the notice of the practitioner as diseases of the body, are in reality diseases of the teeth. It is clearly impossible to treat the body as a whole, if we are ignorant of its parts; and I will venture to say there is no part much more widely or universally affecting the general system than that of the teeth.

ART. 117.—*On bleeding from the Ranine Veins in affections of the throat.*

By MM. MÉTIVIER and CHARRIER.

(*Bull. Gén. de Ther.*, Jan. 1857.)

After an interesting trial, these physicians speak very highly of this practice in all inflammatory affections of the throat. M. Métivier adopts the plan recommended by Paré, and makes a transverse puncture in one of the ranine veins. M. Aran, on the contrary, who has employed the same method of treatment in affections of the throat, exposes the vein first, by making a slit in the mucous membrane, and then opens the vein, one or both, according to the quantity of blood required, by a longitudinal incision.

ART. 118.—*On Excision of the Tongue for Cancer.* By Mr. SYME, Professor of Clinical Surgery in the University of Edinburgh.

(*Lancet*, Aug. 3, 1858.)

Mr. Syme has lately tried the effect of extirpating the whole tongue. As cancer frequently exists for a long while without extending beyond the tongue, and yet rapidly reappears after the affected parts have been cut freely away, there seemed reason to think that if the whole texture showing this disposition to morbid action were removed, the patient might escape future trouble. Some reports had reached him of this having been done by cutting into the mouth under the chin, and then completing the operation by means of either a knife or the écraseur; but feeling assured that it was impossible to accomplish the object fully and satisfactorily through the imperfect access thus afforded to the root of the tongue, he resolved to divide the jaw at the symphysis, and then draw the two halves aside, so as to get room for accurate dissection and ligation of the vessels.

CASE 1.—G. S., æt. 47, a shoemaker, was admitted into the hospital on the 11th of November, 1857, suffering under an extensive cancer of the tongue, which was diseased throughout its whole extent, except towards the root. He stated that only five months had elapsed since the commencement of his complaint, or, at all events, since his attention was first called to it. There was no glandular swelling, or any other sign of disease.

On the 9th of December I made an incision through the lip, and extending it down towards the os hyoides, then sawed through the thick part of the symphysis, and completed its division by cutting pliers; next had the two halves held aside while I dissected backwards, so as to cut and tie the lingual arteries near the cornu of the os hyoides, and finally detached the tongue closely from the body of this bone. The edges of the wound were then brought together, and the patient walked stoutly to bed. Food was supplied by the injection of milk and beef-tea through a tube introduced into the œsophagus, and everything went on so favorably for several days that I entertained no doubt as to the patient's recovery; but on the fourth day he began to complain of uneasiness in the chest, had a quick pulse, and became feeble. These unpleasant symptoms rapidly assumed a still more serious aspect, and terminated fatally on the seventh day.

On dissection, the wound, larynx, and trachea were found in a satisfactory state, but the lungs were thickly interspersed with small indurations indicative of recent inflammatory action.

In considering this case, I felt at some loss to determine whether the fatal issue had necessarily resulted from the operation, or was owing to circumstances that admitted of prevention. The patient was ascertained to have been addicted to habits of intemperance. The wound had been healed throughout its whole extent, so as to leave no room for the escape of discharges from the fauces; and from an early period after the operation experiments had been tried on the power of deglutition, with the effect of exciting a great deal of sputtering and cough. It seemed not improbable that, but for these unfavorable circumstances, the operation might have proved successful; and therefore, although certainly having no great desire to repeat it, I did not feel entitled to decline doing so, should a proper case present itself.

CASE 2.—A few weeks ago I received an application from the hospital at Northampton to admit a patient, who appeared a very suitable subject for the purpose. He was 58 years of age, a remarkably respectable, healthy-looking man, without the slightest sign of glandular disease. He had suffered for nearly six years from disease of the tongue, and in the early part of last spring had undergone an operation by ligature in the Northampton Hospital. In consequence of the disease returning, he afterwards went to London (Guy's Hospital), where no operation was performed, but some strong applications were employed. He then went home, with the tongue greatly swelled, and diseased throughout its whole extent, except towards the root, where the texture retained its ordinary characters, so far as could be ascertained by the finger.

On the 31st of July I performed the operation precisely as on the former occasion, but instead of closing the wound throughout its whole length left about an inch of it open at the lower part, and inserted a piece of lint to prevent adhesion. I also directed that no food should be given, except by injection through a tube. Again things went on favorably for a few days, and again I entertained sanguine expectations of success; but on the evening of the third day, symptoms of the same alarming character as in the first case showed themselves; so that next day I saw there was no hope, and felt prepared for the fatal result, which took place on the following day.

On dissection, the air-passages were again found free from signs of disease until they reached the lungs, where there were extensive indications of recent inflammation.

ART. 119.—*Three cases in which the Superior Maxillary Nerve was divided behind the Ganglion of Meckel, without injury to the nutrition of the face.* By Dr. CARNOCHAN.

(*American Journal of Medical Science*, Jan., 1858; and *Journ. de Physiologie*, April, 1858.)

The result of three brilliant operations upon the upper jaw is interesting to physiologists, in that it shows that the wound can cicatrize, and the nutrition of the parts to which the superior maxillary nerve is distributed go on healthily, after the trunk of this nerve has been divided behind the ganglion of Meckel.

The result, indeed, is decisive against the opinion of those who attribute to this nerve, as well as to the other branches of the trigeminal, an essential office in carrying on the nutrition of the face.

ART. 120.—*On Extirpation of the Parotid.* By Dr. J. M. WARREN.

(*Boston Med. and Surg. Journal*, May 14, 1857; and *North American Medico-Chir. Rev.*, Jan., 1858.)

In a paper on "Tumors in the Parotid Region," Dr. Warren states his experience upon this subject in the following paragraphs:—

"As to the practical question which is often raised, whether the gland can be removed without the ligature of the carotid, the result of my experience is this. The parotid gland has been removed by me in six instances, which are given below: three for scirrhus disease, one for erectile tissue, one for melanosis, and one for hypertrophy; in none of these was the great artery tied. The experiment of dissecting out the parotid gland in the dead subject has been frequently made by me, and with a little care this can be done in most instances, leaving the great vessels behind, although sometimes a small backward projecting bit of the gland is left, and this has been observed to escape disease. But in scirrhus affections, where the gland undergoes a gradual induration, the vessels are frequently pushed backward, as they were in one or two of the cases here given. The above observation is confirmed by my friend and colleague at the hospital, Dr. Gay, who made similar dissections on the dead body to ascertain this point.

"In a case mentioned by Dr. J. C. Warren the carotid was cut at the end of the operation, and the jet of blood struck the wall. The vessel was secured, the carotid being compressed below, and the patient did well. In a second case for the removal of a scirrhus parotid, in which I assisted Dr. Warren, the carotid was divided and tied. Three days after, as the patient was straining at stool, the vessel gave way, and the blood struck the ceiling. He almost at once fainted, and the friends were fortunately sufficiently cool to place a sponge in the wound, and to check the flow partially. I was called, and at once cut down upon the carotid in the neck, tied it, and stopped the farther effusion of blood. Bérard, in his monograph on this subject, mentions many instances of removal of this gland without ligature of the carotid."

The paper is completed by the history of the six cases above alluded to.

ART. 121.—*Novel method of extracting a foreign body from the Œsophagus.*

By Dr. DAVID RICE.

(*Boston Med. and Surg. Journal*, Dec. 3, 1857; and *North American Medico-Chir. Rev.*, Jan., 1858.)

CASE.—Mrs. Field, a lady, æt. 70, while eating chicken-soup, accidentally swallowed a piece of bone the size of an American quarter of a dollar cut into a triangular form. The bone lodged in the Œsophagus, about two inches below the top of the sternum. Thinking that it might fall into the stomach, she neglected to apply for surgical aid until the fifth day after the accident. In the meantime, she had swallowed neither food nor drink, both regurgitating into the mouth with every attempt.

I was called the fifth day, to try to remove the bone by surgical means. My first attempt was by a piece of whalebone, the extremity being perforated with numerous small holes, into which were fastened a dozen or more loops, about an inch long, made with small linen twist.

With this contrivance I failed, after many patient trials. I could readily reach the bone, but the loops did not fasten to any point of its angular form with sufficient permanency to enable me to extract it. I could even pass the piece of whalebone beyond the foreign body, and ascertained that it rested upon the posterior side of the Œsophagus, standing perpendicularly, with two of its corners fastened into the gullet.

I finally took a piece of dry sponge about an inch long, and of such a shape, when dry, as to fill one-half of the Œsophagus. This I tied to the extremity

of my whalebone-sound. Turning back the head of the patient, I passed it down the œsophagus, in a dry state, as rapidly as I dared to do, until I was certain it had passed beyond the bone. I then introduced a little fluid into the mouth, which quickly reached the dry sponge, enlarging it to twice its natural size, completely filling the gullet. I drew it out, and with it came the bone, much to my gratification and the patient's relief.

ART. 122.—*Practical remarks on Tracheotomy.* By M. GUERSANT.

(*Journal of Pract. Med. and Surgery*; and *Dublin Hospital Gazette*, May 15, 1858.)

M. Guersant's object in this paper is to describe the safest mode of performing this operation, and of promoting a successful issue.

The instruments employed by this surgeon we have frequently described; he has added to their number a tenaculum, an œsophagian forceps, and a caoutchouc probe, destined to serve as a conductor to the silver canula.

The object of the tenaculum is twofold; it assists materially in the ligature of whatever small arteries may have been divided, and furnishes, if required, a safe and prompt mode of fixing the trachea. With regard to this point, M. Guersant reminds us of the importance of the above indication, in the eyes of several eminent surgeons. M. Bretonneau having remarked that the instability of the trachea frequently causes it to move, so as to render its incision a matter of some difficulty, recommended to fix it in its position with the assistance of long needles, curved at their point, and furnished at their head with a ball of sealing wax. For the same purpose, Mr. Liston used a simple hook, with which he fixed the trachea, after having laid it bare by a prolonged incision of the skin. M. Chassaignac went one step farther: finding it next to impossible, by the unaided pressure of the fingers, to steady the windpipe, on account of its elasticity and the numerous muscles by which it is surrounded, it occurred to him to secure the cricoid cartilage with a powerful tenaculum, the convexity of which being grooved, like the catheter used in lithotomy, might serve as a conductor, along which the knife could readily glide into the trachea. Tracheotomy, thus performed, is an exceedingly brilliant operation; and we must say that M. Chassaignac has never had any reason to regret having imagined this *modus operandi*, which has also been resorted to with success by a distinguished young physician, Dr. Isambert. M. Guersant himself has also employed it with advantage, but he does not, however, consider the use of the tenaculum as absolutely necessary. In many cases he is of opinion that it may be dispensed with; and on the other hand, he thinks that by cutting at once into the trachea, through the skin and all the intervening textures, important bloodvessels may be divided, and amongst others, Neubauer's thyroid artery. M. Guersant acknowledges, nevertheless, the real utility of Chassaignac's tenaculum; and to render it still more efficient, he has modified its construction in the following manner. Having remarked that the common tenaculum twists the trachea to a certain extent, and exposes the surgeon to open it at the side, he caused the instrument to be bent at right angles with its handle, so as to act much in the way of Deschamp's needle. We may also add, with M. Chassaignac, that in the absence of a special instrument, a ligature passed through the trachea with a curved needle will sufficiently answer the surgeon's purpose.

Formerly, when the trachea was incised, and found to contain false membranes, it was cleaned with a little sponge borne upon a whalebone. Unfortunately, this instrument acted like a ramrod, forcing back the diphtheritic secretions, and merely displacing the impediment to the free introduction of air. This disadvantage has induced M. Guersant to abandon the sponge, and adopt the œsophagian forceps, with which he removes readily the false membranes, hooking them up in the same way in which he recently extracted a bean which had slipped into one of the principal bronchial divisions.

He also insists upon the necessity of adding to the double canula a caoutchouc conductor of a proper size. It is an excellent guide when the silver tube has to be inserted—an anxious moment, during which hesitation of any prolonged duration might bring on asphyxia; with the conductor no mistake of any

moment can possibly occur. If the instrument enters readily into the wind-pipe, the expired air, passing through the apertures of the catheter, gives satisfactory evidence of its penetration into the proper duct; and, in the contrary case, the apparatus is withdrawn; and, supposing the too small dimensions of the wound to have produced the difficulty, the operator, by merely enlarging the incision, has every chance of complete success before him.

Both before and after the operation precautions should be taken upon which it is impossible to lay too much stress. The child should repose upon a solid bed, at breast height, the head thrown back, and the hinder part of the neck supported by a tight straw or linen bolster, so as to bring forward as much as possible the entire infra-hyoidean region. The co-operation of several persons is indispensable, in order to maintain the attitude of the patient, and aid the operator. In private practice, what help can be obtained must be utilized, but a cool and skilful assistant must be placed on the side opposite the operating surgeon.

According to M. Guersant, the stoutness of the child must give the measure of the incision to be made. It is, however, a dictate of common prudence not to extend the section too far towards the sternum; to examine with the finger, during dissection, the inferior angle of the incision; and to keep a vigilant eye upon *arteria innominata*, which, in young children, rises with the act of inspiration. In the hospital this artery was once injured; in private practice one of the carotids was likewise wounded; and in several instances the œsophagus. When M. Guersant performs tracheotomy he proceeds as follows: With one bold sweep he divides promptly the skin and subcutaneous cellular tissue, on the mesial line. After sponging the wound, the intermuscular space is sought for. The knife is then laid by, and, with a grooved conductor without a stop, the veins are pushed aside, the lips of the wound being kept well asunder with blunt hooks or lid-depressors. The muscles are separated in the same way, and the trachea is thus laid bare. If it be unsteady, and deeply seated, M. Guersant fixes it with the cricoidean tenaculum; if not, he simply supports the ærian tube with the left index, and, introducing the knife perpendicularly into its cavity, he divides, according to the child's age, from below upwards, two, three, or four of its rings.

After the incision, the child must cough up the blood which has flowed into the respiratory organs. Should its exit present any difficulty, it may be sucked up with a syringe. The dilator is then introduced, previously to placing the canula.

Since the substitution of the double instead of the single silver canula, and since the precaution has been adopted of placing before its orifice, as a kind of respirator, a muslin or woollen tissue, through which the air may be filtered, and by which the inhaled air is kept constantly in a state of warm moisture, the anxiety caused by the solidification of mucous deposits within the tube has been dispelled. It is, however, always desirable to modify as much as possible the circumbient atmosphere. Thus, in rooms heated by means of stoves, the air is generally too dry; it should be supplied with moisture, by placing on each side of the patient's bed, and renewing from time to time, large basins filled with warm decoction of marsh-mallow roots, the tepid vapor of which will assist expectoration.

M. Guersant does not cauterize the lips of the incision as a measure of precaution. Should they, after forty-eight hours, present any diphtheritic appearance, he touches them with lunar caustic; two days later he repeats the application, refreshing the wound, in the interval, with lemon-juice. He does not object to leaving the canula untouched during the two days subsequent to the operation, although it may be necessary to withdraw it before that period. Thus, if false membranes block up the trachea, the canula must at once be removed, and the morbid secretions extracted with the forceps.

Some patients proceed most satisfactorily after tracheotomy, and yet the food cannot be swallowed without, as it were, going down the wrong way. This singular symptom is occasionally noticed at a much later period, even when the canula has been removed. It seems caused by the fact that the epiglottis, having been for a long time fatigued by the presence of pseudo-membraneous secre-

tions, has lost the power of properly performing its functions. In order to recover its elasticity it requires repose, and in the interval the patient languishes and wastes away. This functional incapacity is sometimes relieved by the administration, recommended by Professor Trousseau, of soups thickened with bread or vegetables, macaroni, or hashed meat, the deglutition of which appears easier than that of purely liquid nutriment. If that plan be unsuccessful, a caoutchouc tube must be introduced through the nostril into the œsophagus; and thus, three or four times daily, broth, milk, or chocolate may be admitted into the stomach. The *chordæ vocales* may, like the epiglottis, be more or less crusted over with false membranes; after the removal of the canula no air passes through the larynx, its cavity continuing to be obliterated by diphtheritic secretions. In such cases M. Guersant has derived much advantage from the following plan: A small pledget of lint is tied with a double string, one of the ends of which is firmly fixed to an India-rubber catheter, which is carried upwards into the larynx. This little apparatus raises the epiglottis, and, through the pharynx, appears in the fauces; it can thus readily be passed several times up and down through the larynx, so as to remove the false membranes adhering to the parietes.

The canula should be definitively withdrawn only after the expulsion of these morbid productions, and when the air-passages have recovered their complete freedom. As a proof that this object has been attained, the child must be able to blow out a candle, and should feel no dyspnœa when the lips of the artificial opening in the trachea are brought into close approximation. It is then proper to take measures to close the wound. M. Guersant applies only a simple dressing, and never contemplates immediate healing. He merely keeps down granulation by the application of lunar caustic, and he frequently meets in society young ladies whom he had operated on twelve or fifteen years before, and who bear no visible marks of tracheotomy.

Such are the local measures required by this operation. The general treatment, hygienic and pharmaceutic, has not less importance, nor is it less deserving of the practitioner's attention. The little patients must be in good air, and kept warm. In this respect it is most necessary to avoid any portion of their drinks falling upon their clothes or their persons. The question of nutriment is also of the greatest consequence. After all operations, except in very rare cases, the patients require support; after tracheotomy necessitated by pseudo-membranous croup, this indication is an obligation of the most urgent character. M. Guersant at first prescribes beef-tea, and milk-and-water; somewhat later, tapioca, arrowroot, groats, infusion of roasted acorns, &c. Further, it is evident that if any special treatment can be with advantage applied to diphtheritic disease, it is incumbent upon the physician to give his patient the benefit of such treatment; but we will postpone entering upon this interesting subject until our next number.

ART. 123.—On penetrating Wounds of the Chest. By Dr. FRAZER, Physician in the London Hospital.

(*Proceedings of Royal Medical and Chir. Soc., June 22, 1858.*)

The author considers that certain observations made, and since extended, by him, while attached to the general hospital in camp before Sebastopol, during the height of the siege in 1855, may be acceptable to the Fellows of the Society. There are no records of the effects produced by, or the treatment adopted for, wounds of the lungs, in the ancient wars. The employment of gunpowder in warfare in 1346, in which large guns were used at the battle of Cressy, and subsequently in 1382, when small arms were employed by the Venetians, effected a complete change in the mode of action between contending armies, and a characteristic variety in the wounds inflicted.

In collating the statistics of lung-wounds, the author has been surprised at the small number which had been brought into hospital in the Crimea, and also at the few cases given in the records of various previous wars, and, in pursuing the inquiry, at the rarity of cases reported in the various medical periodicals and journals; and the remarkable scarcity of morbid preparations

of lung-wound in the professional museums of London, of Chatham, and elsewhere, warrant a conclusion that our sphere of observation on this very important subject has hitherto been very limited. The author explains this by alleging that a large, if not the largest, proportion of mortal wounds proceed from injury to the lungs. The men are struck down, and die rapidly and unnoticed. Out of the grand total of wounded throughout the Crimean war, viz., 12,094, there are returned under the head of "penetrating wounds of the chest" only 125, being a little over 1 per cent.

The points requiring most attention in relation to chest wounds are—the mortality; the diagnosis; the prognosis; and the treatment.

First, as to the mortality. The author is strongly inclined to the opinion that lung-wounds are very fatal, and says that great doubt exists in his mind whether many of the cases reported as "wounds of the lung" were not wounds of the pleura only, and sometimes not even of that membrane; and he believes that many of the alleged wonderful recoveries from wound of the lung would have been disproved at death if a post-mortem examination had been always performed. On the other hand, when the pleura only are wounded, recovery frequently takes place. Various experiments by the author, and Dr. Richardson and others, fully establish these points. He records his warm thanks to Dr. Richardson for his able assistance in the conduct of the experiments narrated in the paper, in which he has freely incorporated many valuable opinions, suggestions, and deductions expressed by that gentleman.

The diagnosis and prognosis are next noticed; and the author enters folly into the general symptoms attending "wounds of the chest," drawing attention to the fact, that there is often little or no anxiety, dyspnoea, or other marked symptom attendant on such wounds. The contrast, in this respect, between "wounds of the abdomen" and "wounds of the chest" is remarkable; in the former there is present, invariably, great nervous agitation and sinking. In pursuing the diagnosis, the prime question is whether the substance of the lung be wounded or not; for in this the prognosis is seriously concerned. An answer is not easily given. Some physiologists hold that the lung collapses, whether its substance be wounded or not, whenever the pleural cavity is opened. The author himself, Dr. Richardson, and many writers, have observed the lung of the wounded to expand on expiration, and to contract upon inspiration: as this curious phenomenon was seen sometimes when the lung was wounded, and sometimes when the lung was not wounded, the author concluded that no reliable practical deduction can be drawn from this very curious physiological fact.

The author next enlarges upon those symptoms which are usually accepted as, and by numerous writers positively affirmed to be, conclusive proof of the substance of the lung being wounded. Various cases are cited to show the necessity for caution in pronouncing a diagnosis on the apparent track of the ball.

He shows by several tables, the comparative frequency of *dyspnoea*, *hæmoptysis*, *emphysema*, *pneumonia*, and the *passage of air through the wound*, in the cases which he witnessed.

Out of 9 fatal cases in which the lungs were wounded, only 3 had *dyspnoea*. Out of 9 fatal cases, in which the lungs were not wounded, 3 had *dyspnoea*. Out of 12 cases of recovery, 2 had *dyspnoea*. The author considers that *dyspnoea* is a consequence of the inability, during inspiration, of a lung to follow up the expanding chest wall. It will be most intense, therefore, when the action of the thorax is free, and when, from an obstruction in the bronchial passages, the air cannot reach the vesicles, and the lung remains more or less expanded. But, when there is an opening in the chest-wall, and air can pass freely out and in by this abnormal channel, the lung having collapsed, there will be no effort to retain its normal position, and consequently there will be no *dyspnoea*. If this be the true explanation, we must, then, receive *dyspnoea* with great caution as a proof of lung-wound.

The author views *hæmoptysis* as a most deceptive sign of lung-wound, notwithstanding that almost every writer on the subject has regarded its presence as a conclusive sign of lung-wound. In 9 fatal cases, in which the lungs were

wounded, only 1 had hæmoptysis. Out of 9 fatal cases, in which the lungs were not wounded, 4 had hæmoptysis. In 12 cases of recovery, 3 had hæmoptysis. Indeed, in those cases where the lung has been wounded, as verified by examination after death, the appearance of the portion of lung around the track of the wound would lead to the conclusion that the highly condensed portion of lung had acted protectively against hemorrhage. When it does occur to such an extent as to threaten suffocation, it becomes pretty certain that the trachea and some large vessel have been opened. That hemorrhage, taken alone, is no proof of lung-wound, is shown by its happening in cases of mere concussion or contusion.

Emphysema, contrary to the opinion of most writers, is a very rare consequence of lung-wound. Out of 9 fatal cases, in which the lungs were wounded, it occurred in 3 instances. Out of 9 fatal cases, in which the lungs were not wounded, it occurred in 1 instance. It was present in 1 case out of 12 recoveries.

Pneumonia may supervene, but not of necessity, as some writers assert, to lung-wound; but when it does approach, it is only after a lapse of some time, and cannot, therefore, be made available as an early means of diagnosis. Out of 9 fatal cases, in which the lung was wounded, it did not appear once. Out of 9 fatal cases, in which the lungs were not wounded, it appeared in 1 case, and that on the third day. Out of 12 cases of recovery, it appeared in 2 cases, on the fourth and twentieth days respectively. The post-mortem examinations revealed, in several instances, appearances which many persons would have put down to the effects of pneumonia, but which the author considers to have been merely an intense congestion. In some of the experiments a degree of congestion followed, within a few minutes, the infliction of the injury, which might easily have been mistaken for pneumonia, in a hasty pathological examination. The author considers that when an opening exists in the chest-wall, the physical signs indicating the presence of pneumonia are so modified that no reliance can be placed upon them. He dissents from the opinion expressed by some authors, that traumatic and idiopathic pneumonia are homogeneous states, and gives his reasons for this difference of opinion.

The passage of air through the wound, often with a loud gurgling sound, and appearing to take the place entirely of the tracheal passage, has a most startling effect upon the bystanders, and is generally put down as a certain sign of lung-wound. Out of 9 fatal cases, in which the lung was wounded, it was present in 2; out of 9 fatal cases, in which the lung was not wounded, it was present in 4 cases; out of 12 cases of recovery, it was present in 1; it was present in 3 experiments in which the lungs were not wounded. The author is rather inclined to the opinion that when the lung is really wounded this "passage of air" will in most cases cease. Dr. Frazer concludes, that although there are none which can be regarded as special indications of lung-wound, yet, if there were three or more of the ordinary signs present, they may be taken as strong presumptive proofs of its existence; and if there be present, besides, more or less anxiety, coldness of surface, and orthopnea, it may be considered nearly certain that the substance of the lung is wounded, and that the patient is in imminent danger.

The author enters fully into the treatment of "penetrating wounds of the chest," and inculcates the non-necessity of an over-active manual interference to remove the lodged missile, by showing that a ball may remain innocuous for years in the thoracic cavity, and he gives, as one example, a case where the ball was fifty years in the body, and mentions an instance of a gallant officer, who, after having been subjected for some time to the well-meant but injudicious pokings of his surgeon, inquired what he was about, and on receiving the answer, "searching for the ball," his reply was gruff and graphic, "I wish you had told me that before, because you will find it in my waistcoat pocket."

The author next adverted to what has been, and is still asserted by many to be, the "sheet anchor" in the treatment of "penetrating wounds of the chest;" viz., venesection. He gives the opinions of others, and expresses his own doubts as to the prophylactic power of venesection in obviating the tendency to inflammatory action, or in arresting its progress, or in removing its effects

when present. In reference to treatment, he recommends the removal of foreign substances, and all other causes of irritation, when practicable, from the wound. When the wound is small, and especially if there should be two openings, the closing of the anterior is to be attempted; and, if there be no sign of effusion, both may be closed; and, in all cases, absolute rest, cooling beverages, and moderate nourishment are called for, avoiding over-stimulation. Bleeding, mercurialization, narcotism, and antimony, the old elements of treatment, may, under the direction of sound skill and under special circumstances, become advisable; but their routine application is second only in mischief to the injury itself.

ART. 124.—*Case of Epithelial Cancer of the Œsophagus in which Gastrostomy was performed.* By Dr. HABERSHON, Assistant-Physician to Guy's Hospital. (*Guy's Hospital Reports*, Third Series, vol. iv. 1858.)

"The consideration of the complete particulars of this case," says Dr. Habershon, "lead to the conviction that, if the operation had been performed earlier, more permanent benefit might have accrued. It was done with comparatively trifling addition to the sufferings of the patient; it was effected with ease, without collapse or peritonitis; the thirst and sense of starvation were relieved in a degree which was scarcely anticipated. In cases where starvation equally advanced as in this case has been witnessed, death has taken place as quickly; and it is probable that had the operation not been performed, death might have taken place as speedily, if not more so. The patient would certainly have been deprived of the relief which for twenty-four hours he experienced. Under these circumstances it is urged that, if a favorable case be presented, the same operation be performed, but without waiting till life is almost extinct."

CASE.—Walter H——, æt. 47, was admitted into Guy's Hospital October 8th, 1857, under my care. He had resided at Tunbridge Wells as a stableman, was of ordinary stature, light complexion, and moderately nourished. He stated, that for sixteen years he had had winter cough, but that he had never had dropsy. On admission there was considerable dyspnoea; the lips purplish; the pulse compressible, but regular; the chest was resonant on percussion, and the respiratory murmur indistinct; distant prolonged expiratory murmur was everywhere audible, with some sibilant râle; the voice also indistinct, and tactile vibration diminished. The heart-sounds were regular and normal; the expectoration frothy and moderately abundant. The abdomen was moderately full and rounded; the liver not felt to be enlarged; the legs were not œdematous, neither did the urine contain albumen. There was a small hard gland felt about the anterior margin and upper part of the sterno-mastoid muscle. He was ordered the julep of acetate of ammonia, with nitric ether and compound tincture of camphor, squill and blue pill night and morning; and meat diet.

After he had been in the hospital for a short time, he began to complain of severe pain in the throat during coughing; but, on carefully examining the part, nothing could be perceived. In a few weeks pain was also produced in swallowing, especially when solids were taken, the cough continuing unrelieved. On December 14th, he continued to suffer severely, and became more anæmic; the countenance was expressive of great distress, and the mind irritable; deglutition had become very difficult, so that he could only take fluid forms of food, and some stimulant. The cough also was very troublesome, producing very severe pain in the throat; it was violent, and small drops of blood were spirted out in the act of coughing; the expectoration was thin and watery. The chest continued resonant; respiration very feeble, on the left side indistinct, and the expiratory murmur prolonged; the larynx was free in its movements. Nothing could be seen in the throat, except slight œdema and redness towards the right side. The gland at the angle of the jaw remained of the same size; the pulse was compressible; the tongue clean; the bowels confined. Various means were tried, as conium and carbonate soda, with hydrocyanic acid, steel, &c. The bowels were acted upon by colocynth and henbane, by magnesia mixture, or by injections. Counter-irritation was applied to the throat—hot water fomentation, or cataplasms, blisters, &c. The

inhalation of steam afforded some relief, but still more the smoking of stramonium leaves. Tincture of aconite, applied externally, was also of some benefit. My friend and colleague, Mr. Cooper Forster, examined the throat for me, but could not detect any cause of obstruction. The patient continued during January and February without any improvement, the emaciation increased, and both respiration and deglutition became more difficult, especially the latter. Morphia occasionally given, and the stramonium inhaled, afforded partial relief. On again examining the throat, Mr. Forster felt below the epiglottis, towards the right side, a rounded tumor, which was evidently obstructing the commencement of the œsophagus, and he believed its surface was ulcerated. The respiration, although noisy and accompanied with a loud inspiratory sound, was not hurried, and sufficient air appeared to enter the larynx. The propriety of performing tracheotomy was discussed, but it was decided that no benefit would be likely to accrue from it. The examination of the growth in the throat was followed by temporary relief; and the patient was able, for three or four days, to swallow solid food. The stramonium and other means of relief, were continued; and nourishment was given in any form that he could take it. On March 1st the emaciation had very much increased. During inspiration a loud noise was produced in the throat; and this sound had for some weeks been increasing in intensity, so that he had been unable to sleep for several nights, on account of the "roaring," as he termed it. His voice had become more feeble, but the cough had almost ceased; he could only swallow fluids, and those very slowly; his nourishment latterly had consisted of milk and rum, with eggs. Deglutition was much relieved for two or three days by two small blisters applied on either side the larynx; but it again became so difficult, that nutrient injections were resorted to. On February 22d, these injections, by allowing the throat to rest, enabled him in a few days to swallow with more comfort. The pulse had become very compressible and small; the bowels occasionally constipated.—March 2d. The respiration became more difficult, and Mr. Stocker had tracheotomy performed in the night. The incision was made as low as possible, but the trachea appeared flattened from behind, and the patient could not bear the tracheal tube inserted; when it was attempted he appeared to be quite incapable of breathing. The operation did not afford relief; and a deep-toned rhonchus could be heard in the lungs. There was no congestion of the face; the pulse very compressible; cough slight; he was able to get down his rum and milk, and some blanc-mange, &c. On the 9th he was breathing more comfortably; the opening in the throat was patent, and thin pus covered the red margins of the wound; there was also less noise on inspiration.—24th. The emaciation and prostration of strength increased; his bones appeared barely covered with thin skin, and the face expressive of starvation. He said "he was famished." He endeavored to relieve his distressing thirst by moistening the mouth; but for four days he had not been able to swallow a drop of fluid. The attempt to swallow at my request was preceded by much hesitation and preparation, and was followed by a paroxysm of severe coughing. The expectoration had changed in character, and become muco-purulent. On examining the chest sibilant râles were everywhere faintly audible. There was no dulness on percussion, but preternatural resonance. The voice was very feeble, and scarcely audible; the pulse slow and very compressible; the tongue clean; the larynx was movable; the gland at the angle of the jaw as before; the opening in the skin made during tracheotomy remained open, and the skin was undermined, there being evidently no power to repair the wound. The abdomen was exceedingly contracted, the pulsation of the aorta being visible, and the arteries most distinctly traceable. There was no evidence of enlargement of the liver, or of disease of the abdominal viscera. He complained of pain towards the right side, and tied a handkerchief firmly around him to relieve the sense of hunger. The skin was dry. He passed about a pint and a half of urine during the day. The sleep was tolerable; the mind clear and active. Nutrient injections of beef-tea, eggs and rum, thickened, if possible, with flour, had been given at first four times, and then six times a day. Milk also was ordered, and $\frac{m\text{v}}$ of tincture of opium to be added to each injection. On the 25th he ap-

peared to be sinking, and the rectum ejected the enemata almost at once. His hands were cold; but he complained of a sense of heat. It now became a question, whether life was to be allowed gradually to die out, or an attempt to be made by any other means for the introduction of food; the patient appeared to have chronic bronchitis, with epithelial cancer at the commencement of the œsophagus, possibly extending into the trachea, and death threatened from inanition. Three modes of relief suggested themselves—1st, the forcible introduction of an œsophageal tube; 2d, opening the œsophagus in the neck; and 3d, opening the stomach. In reference to the first, there was evidence of a growth at the commencement of the œsophagus; and the trachea appeared partially compressed, as shown in the operation of tracheotomy. The disease in the throat was probably of the form of epithelial cancer, and the passage of a bougie must have been constantly repeated. The great irritation and coughing produced by attempting to swallow, showed that the epiglottis was extensively ulcerated; or that there was a communication between the œsophagus and trachea, which would render the passage of a bougie very dangerous. In some cases of cancer of the œsophagus, a bougie has been passed into the pleura, and led to speedy death—and probably the passage of a bougie could not have been effected—this decided against the first proceeding. As to the second—opening the œsophagus—the most frequent seat of cancer in that tube being opposite to the root of the lung, about the third dorsal vertebra, and consequently beneath the position at which the canal could be opened, would have made the operation a very formidable, dangerous, and useless one. In reference to the third—opening the stomach—this alone appeared to be the operation which could possibly relieve the patient. Wounds of the stomach, as that of Alexis St. Martin, the cases recorded by Mr. South, those by Dr. Murchison, &c., showed that life could be continued after fistulous communication had been thus made. The operations on the lower animals proved that it could be performed with some probability of success; such an operation would give a chance of prolonged life, where death was certain; and where the peritoneum was healthy, there was less danger than in abnormal conditions of that membrane. If life were prolonged only for a short time, and food introduced, there would be relief to the distressing thirst and the fearful sense of starvation; and lastly, it was evident that the patient was dying from inanition rather than from the disease, nutrient enemata being refused. On the other hand, however, I felt that the disease was probably of a cancerous character, and would sooner or later terminate life; that the operation was a hazardous and uncertain one; and that life might possibly be continued for a few days by a small portion of the injection being retained. After carefully weighing these facts, I asked the assistance of my colleague, Mr. Cooper Forster, and if he considered the operation of opening the stomach through the anterior abdominal parietes, for the purpose of introducing food, a feasible and warrantable one, I decided that it should be attempted. The operation was accordingly performed by that gentleman, the steps of which he will describe; but the skill with which it was executed, the scientific coolness and care displayed, and the manner in which it was brought to a successful termination, all who witnessed the operation can confirm.—March 26th. The operation took place about half-past 2 P. M., and was borne without a movement on the part of the patient. The pulse, which before the operation was 62, and exceedingly compressible, rose to 116. Six drachms of milk with part of an egg were introduced through an elastic tube into the stomach. About twenty minutes past 3 about two ounces more milk and egg were introduced; he complained of feeling a sense of heat, but appeared comfortable. He was now removed to bed. At 4 P. M., the pulse was 120 and still very feeble; it was decided to introduce every half hour, if the patient were awake, two ounces of milk and egg, and every second time two drachms of rum with it. At 9 P. M. he was comfortable; there had been slight pain in the left side; the pulse was fuller, 124; the skin less parched; and he had slept occasionally for a short time. Messrs. Greenwood, Gayleard, Owen, and Tuck, kindly volunteered to remain with him in rotation, and their assiduous care and kind attention is sincerely acknowledged. During the night he had four hours of sleep; he passed urine, and there were three

slight watery evacuations from the bowels.—27th. About 10 A. M. he coughed violently, and the contents of the stomach were forcibly ejected through the wound. His pulse continued 120. At 1 P. M. he was cheerful, his eyes more bright, his voice stronger, the skin less parched, his tongue moist, thirst and the sense of starvation relieved; he had pain in the left side; the pulse 120, and very compressible; his hands were cold, feet and legs warm, the coldness of the hands was very marked for several days before the operation. The operation had evidently mitigated his suffering. At 1.30 P. M. half an ounce of rum, with sugar, and an ounce and a half of water, and fifteen minims of lemon-juice were given. The stomach received it well, contracting upon the tube. He said that it produced a comfortable sense of warmth throughout the abdomen. At 3.30 the pulse was firmer and fuller than at 1 o'clock, and the hands warmer. Since the operation, during the twenty-four hours, he had six eggs, beaten up in twelve ounces of milk, given in small, divided doses, with four ounces of rum. Milk and egg, or beef-tea thickened with flour, were ordered every half hour, and occasionally half an ounce of rum, as just mentioned. At 8.30 P. M. faintness came on, the face became cold and perspiring; pulse 136, and scarcely to be felt. The stomach appeared to have lost its power of contracting on the food introduced.

Stimulants were ordered to be given repeatedly and freely, with nourishment as before; and two or three times, as a stimulant, \mathfrak{m}_{xx} of tincture of sesquichloride of iron. During the night he was evidently sinking, the pulse sometimes became scarcely perceptible, but rallied after stimulants were introduced. On the 28th he slept for a short time about 10 A. M., and expressed himself as comfortable; but gradually became unconscious, and died at 10.45, rather more than forty-four hours after the operation.

Inspection was made twenty-eight hours after death. The body was extremely emaciated. The head was not examined. At the lower part of the neck, immediately above the sternum, was the wound made in tracheotomy, gaping and undermined, and on the trachea a few drops of pus. At the left hypochondrium was the opening made by the operation of gastrotomy, also enlarged by the plug which had been introduced a few hours before death. The mouth and soft palate were healthy, also the epiglottis. At the posterior surface of the cricoid cartilage there was a growth connected with the mucous membrane, about a quarter of an inch in elevation, and extending from side to side, soft and slightly injected; passing downwards, there was irregular ulceration, and towards the trachea destruction of all the coats of the œsophagus; on either side and below, the ulcer was bounded by a sharp undermined edge. The cellular tissue of the trachea and its muscular fibres were destroyed for about half an inch; the mucous membrane was bare, and perforated by a small opening about one-sixteenth of an inch in diameter, so that fluid could pass from the œsophagus into the trachea; below the ulcerated surface in the œsophagus the canal was much contracted by infiltration into the surface of the mucous membrane; the passage was so much diminished at this part that a probe could only be passed after death, and it was probably quite impervious to fluids during life. The constriction was situated at the level of the first bone of the sternum. The rest of the œsophagus was healthy. One or two glands of the neck were infiltrated and diseased, but none of the mediastinal or other glands. The rima glottidis was free; the vocal cords and aryteno-epiglottidean folds quite healthy; so also the trachea. The bronchi contained thick tenacious mucus. The pleura on the left side was healthy; on the right, there were general, but not firm adhesions. The lungs were both much distended with air, pale, emphysematous, and covered the heart. At the right apex the lung-tissue was puckered; there were numerous lobules of iron-gray consolidation, with intervening crepitant lung, but no disorganization. The lower lobe of the right lung afforded a beautiful specimen of emphysema, but there were numerous gray tubercles studded in small clusters; they were non-cancerous. The lower lobe of the left lung was much congested, and one or two lobules were softened and breaking down, from acute changes, probably a very short time before death. There was no enlargement of the bronchial glands. In front of the surface of the heart was a small collection of pus, only a few drops, apparently from the inflammation of small gland. The

pericardium and heart were healthy, the heart contracted and firm. On opening the abdomen, the intestines were found contracted; *the peritoneum was healthy; no inflammation, effusion of lymph or serum, or diminution of its normal smoothness could be detected.* The stomach was partially distended; it was situated lower than usual, and its anterior surface was looped up to the opening in the anterior abdominal parietes made by Mr. Forster at the linea semilunaris. The mucous membrane of the stomach was pale, slightly injected at the opening. On gently drawing aside the stomach at the opening, the opposed serous surfaces were found slightly adhering. The small intestine was healthy throughout, but atrophied; the food introduced had only passed four feet down the intestine; below that point the intestine was exceedingly small. The lower part of the ileum was healthy. In the colon there were several patches of congested mucous membrane. The gall-bladder was distended, the liver healthy, so also the kidneys; the spleen was very small. There was no evidence of any cancerous disease affecting any part except the œsophagus and one or two adjoining glands.

ART. 125.—*On Rupture of the Stomach and Bowels resulting from Contusions of the Abdomen.* By Mr. POLAND, Surgeon to Guy's Hospital.

(*Guy's Hospital Reports*, 3d series, vol. iv. 1858.)

In this valuable monograph, Mr. Poland relates 66 cases, which exhibit very clearly the variety of symptoms which may occur in this class of injuries, and the almost uniformly fatal result. In these cases, indeed, 64 were fatal, and the remaining two were cases in which perhaps the rupture may be considered as questionable. On giving a general idea as to the duration of life in these 64 cases, we take the accompanying table, with the remarks appended to it:—

Duration of life.	Stomach.	Duo- denum.	Je- junum.	Ileum.	Small in- testine not spe- cified.	Do. com- plicated with hernia.	Blow on hernial sac.	Large in- teste- line.
Few hours	2	1	...	...	...	1 (?)
3 "	1	...	...	...	...	...	...	...
4 "	1	...
5 "	1	1	1	1	...	...	...	...
7 "	1
12 "	1	...	1	1	...
13 "	...	1	...	...	1	...	...	...
16 "	1	...	...
18 "	...	1	1	1	...	...	...	...
21 "	1	...	...	...	...	...
22 1/2 "	1	...	...	...	...	...
24 "	4	...	...	1	...
28 "	1	...	...	...	...	...
30 "	1	2	...	...	...	...
31 "	1	...	...	...	...	...
34 "	1	...
36 "	1	1	...	...	1	...
42 "	1	...	...	...	...	1
48 "	2	2	...	...	4	1
3 days	...	1	...	...	...	...	2	...
4 "	1	...
5 "	1	...	...	...	1	...	...	...
6 "	1	...	...	...	...	...
8 "	1	...	...	...	...
16 "	1	...	...	...	...
2 months	1	...	...	...
Not stated	1	3	1	1	1
	3	4	14	16	6	3	13	5

"In drawing any conclusion from the above 64 cases, we must omit 7 cases, in which the time of death is not stated; and we must also exclude the case in which death did not take place until the second month, inasmuch as the case was one of recovery;—thus, then, we have 56 cases for comment; of these,

"10 cases were fatal in the first five hours or stage of collapse, being 17.85 per cent.; of these 2 were of the stomach, 1 of the duodenum, 3 of the jejunum, 2 of the ileum, and 1 of the bowel in a hernial sac, and 1 of the large intestine.

"18 were fatal from five to twenty-four hours, during stages of primary and secondary effects, being 32.14 per cent.; of these 2 of the duodenum, 4 of the jejunum, 6 of the ileum, 1 of the small intestine (not specified), 2 of the intestine complicated with hernia, 2 of the bowel in hernial sac, and 1 of the large intestine.

"Thus, within the first twenty-four hours, 28 cases, being 50 per cent., or half of the whole number, proved fatal in this period.

"19 cases were fatal from twenty-four to forty-eight hours, during the acute and subsequent stages of peritonitis, being 33.92 per cent.; these include 6 of the jejunum, 5 of the ileum, 8 of the bowel in the hernial sac, and 2 of the large intestine.

"9 fatal between the third day and the sixteenth day, during the reparative attempt, being 16.07 per cent.; of these 1 was of the stomach, 1 of the duodenum, 1 of the jejunum, 2 of the ileum, 1 of the small intestine (not specified), and 3 of the bowel in hernial sac.

"In concluding this imperfect attempt at drawing the attention of the profession to this class of injuries, we have been mainly influenced by the fact that much injudicious and careless (we might almost say reckless) treatment has been resorted to. In the numerous instances here collected, we have sad specimens of the action of purgatives in hurrying the unfortunate patient to a more speedy and inevitable death.

"In more than one or two cases has the castor oil administered by the mouth, been found floating about in the peritoneal cavity.

"Hence, then, how cautious should the surgeon be, when called to any case of injury to the abdomen, of however slight a nature it may be? The treatment in all such cases should be that which has been laid down in the early part of this communication, viz., perfect rest of body and perfect rest of bowels; no solid or fluid to pass into the stomach for at least forty-eight hours, and then only in small quantities, so as not to undo what slight reparative attempts have been made by nature; in some instances nature had almost completed her repair of the breach, when by injudicious treatment the temporary barrier has been forced asunder, and speedy death followed. And while again referring to this subject, we will conclude by adducing the following case:—

"Only a few weeks ago a boy was run over by the wheel of a carriage, and the mark of the track of the wheel was distinctly seen extending obliquely across the abdomen. The child was brought to Guy's in a collapsed state, became extremely restless and tossed himself about, evincing great pain and agony; he presented every symptom of ruptured bowel; he remained collapsed for several hours, and had nausea, &c. The boy was starved for forty-eight hours, and had opium in powder, and allowed to suck small quantities of ice at prolonged intervals. He recovered. The case, perhaps, was one only of shock without internal lesion; still it serves as a good typical case of not interfering in such injuries."

ART. 126.—*Intense thirst a symptom of displacement of the Stomach in Diaphragmatic Hernia.* By Dr. WILKS, Assistant-Physician to Guy's Hospital. (*Lancet*, Oct. 23, 1858.)

The presence of this symptom in the three following cases, in Dr. Wilks' opinion, warrants the conclusion that it is of importance in diagnosis.

CASE 1.—Henry S—, æt. 37, was admitted into Guy's Hospital on July 7th, 1855. While working on the Crystal Palace Railway, about two tons of earth fell upon him, producing great injuries to his chest and pelvis. On admission, his breathing was so short that it was thought he would expire every moment;

the left side of the chest was enlarged, tympanitic, and emphysematous, the ribs being also broken. He survived the accident twenty hours, and his most remarkable symptom was *intense thirst*. During the time he lived, he drank immense quantities of water, but he did not vomit. The post-mortem examination revealed several injuries, which I need not here detail, but the most remarkable appearance was the immensely distended stomach, filling the whole left side of the chest. This, together with a portion of colon, had passed through a large rent in the diaphragm.

CASE 2.—In the 'Lancet' of Jan. 19th, 1856 (I quote from a note, not having the journal by me). Dr. Fraser, amongst a series of cases reported from the seat of war in the Crimea, relates the case of a man who received a wound of the diaphragm, whereby the stomach was forced into the chest. He lived six days, but it was probably only on the last that the displacement occurred. The *thirst* on this day became excessive, and his plaintive moanings at not having as much cold water as he desired were painful to hear. He drank a large quantity a few minutes before death.

CASE 3.—This is the case you give in the 'Lancet' of the 16th inst., in the report of which I find, amongst other urgent symptoms from which the man suffered, on one day mentioned—a great deal of *thirst*; on another day—drank a large quantity of water; on another day—drinks an *immense quantity of water*; and so on.

"That this thirst is more than a coincidence is shown from the fact, that, having the first two cases in view, I read through the last one carefully, in expectation of meeting with this symptom, and was not surprised to find it present. To be able to predicate a symptom in any given case is sufficient to prove its intimate connection with it. It is rather a question for the physiologist to solve, why an inordinate stretching or distension of the stomach should give rise to this intense thirst."

ART. 127.—*A new operation for the radical cure of direct Inguinal Hernia.*

By Mr. WOOD, House-Surgeon to King's College Hospital.

(*Lancet*, May 29, 1858.)

The main features of this operation consist: 1st, in its being conducted subcutaneously, insuring a more ready and less painful healing; 2d, in the introduction into the canal of the two layers of superficial and intercolumar fasciæ, which are unusually abundant and strong under the condition of hernia, and which are made to cohere into a solid plug by adhesion of their opposed surfaces, made raw by the subcutaneous separation from the skin, and are also supported and kept in position in the canal by the new adhesions contracted below by the skin from which they were separated; 3d, in the drawing together and close union of the sides of the enlarged external ring by the lateral traction of the ligature upon them, caused by its passing through the same opening in the skin and in the compress upon it, and tying them down by consequent permanent adhesion to the invaginated plug of fasciæ behind them; and 4th, in the firm compression made upon the part during the formation of the adhesions, and their consequent greater extent and firmness, by the traction of the ligature upon the boxwood compress.

Mr. Wood is of opinion that the distinct evidence as to the position of the hernial sac of peritoneum and of the cord through the opening in the skin, and the great certainty that the feel of the tube gives that its position at the extremity is close behind the aponeurosis of the external oblique, and has no intervening structure to be avoided between it and the surface, remove almost entirely the danger of puncturing the sac in this operation; while he supposes that the succeeding pressure may operate after a while in producing adhesions of the opposed surfaces of the doubled-up sac. The operation leaves no dimple or deformity whatever; the cicatrices are very small and slight, and after a time will become nearly imperceptible.

CASE.—John C—, æt. 25, a printer, applied at the hospital with a direct inguinal hernia on the right side, to which he had been subject eighteen months, with frequent obstruction and constipation of the bowels, and after meals had

suffered from great pain and distress in the part. He has tried seven trusses, none of which had power to retain the bowel. The last he tried produced such irritation as to give rise to a series of abscesses in the groin, which was the direct cause of his application. The abscesses being healed, and the patient disposed to submit to an operation for permanent cure, the following was performed:—

On examination, he was found to have a hernia projecting into the scrotum, producing a tumor, which he said sometimes reached the size of his two fists. On reducing it, the external ring and the internal opening were found to be enlarged, so as to admit the ends of three fingers, the margin being lax and loose. On the slightest cough or exertion the bowel immediately dropped down into the scrotum.

Description of the instruments.—The instruments used in this operation consist of: 1st, a tube two inches and a half long, mounted on a strong handle, about three inches and a half in length, curved in a circle of an inch and a half radius, and flattened into an oval at one end, and forming a linear aperture a quarter of an inch wide at the point; 2d, a strong needle, having a corresponding curve, with a perforated point, projecting a full inch beyond the end of the tube when passed through it, and mounted on a strong handle; 3d, a box-wood pad or compress, two inches by one and a quarter, perforated by a hole at half an inch from one end, and crossed longitudinally by a bar of iron-wire screwed on to the upper surface; 4th, a subcutaneous section-knife, with a sharp point, a narrow blade, and an inch of cutting edge.

Operation.—The patient being laid on his back, with the legs a little drawn up, and the hernia returned, an incision, about three-eighths of an inch long, was made through the skin only, over the cord, about an inch and a half below the external ring, with the subcutaneous knife, which was then carried close under the skin, so as to separate a circle of the superficial fascia around the opening of two inches in diameter. The detached fascia was pushed up into the inguinal canal by means of the curved tube, the end being placed through the opening in the skin. The extremity of the tube was then carried behind and close to Poupart's ligament, or the external pillar, to the extent of an inch and a half from the pubic spine. It was then felt, by depressing the handle, to raise the external pillar upon the extremity. The needle carrying the thickest silk ligature was then protruded through the tube, and pushed through the external pillar and the skin, the latter being previously drawn considerably downwards and outwards. The needle was then withdrawn, leaving one end of the ligature on the surface. The end of the tube was next shifted upwards and inwards, and made to protrude behind the internal pillar, as far as possible from its margin. Through this the needle was then passed, and the skin moved upwards and inwards till the point appeared at the opening previously made. The ligature was then freed, and the needle withdrawn, the tube being still held firmly in its position. The ends of the ligature were next passed through the hole in the box-wood compress, one on each side of the wire bar, over which they were then drawn close and tied firmly, so as to retain the pad close down to the end of the tube in the canal, which was then withdrawn. It will thus be seen that the first passing of the needle pierces not only through the external pillar of the external ring, but through the origin of the internal oblique and cremaster muscles, from Poupart's ligament behind it; and at the second passing it goes through not only the internal pillar, but also the conjoined tendon of the internal oblique and transversalis muscles, which is placed behind it, so that the sides of the inguinal canal are drawn together from end to end by the ligature. The wound in the skin of the scrotum was drawn firmly together by plaster, a fold of linen placed upon it, and the whole secured by a spica bandage; the patient being ordered to remain in bed, and to use no exertion whatever.

The bandage was removed on the third day, when the subcutaneous puncture was found completely healed by the first intention. The compressed ligatures were retained till the fifth day, some œdema and suppuration having by this time appeared around them, with considerable soreness and pain in the groin. The opening for the ligature looked red, healthy, and suppurating. It was

dressed with wet lint, oil-silk, a large compress, and spica bandage. In a fortnight it was completely healed. No irritation nor swelling of the testicle occurred in the course of treatment, nor any symptom of peritonitis.

At present, three weeks after the operation, the external ring is felt by the finger, pushed up beside the cord, to be completely blocked up by a broad band of fascia passing across it and up along the canal, with the cord passing by the lower part. The sides of the canal are felt adherent and consolidated. There is no *ballotement* whatever felt on coughing; the groin of the side operated upon being more firm and resistant, in fact, than the opposite, which has always been a little weak. The patient was ordered to wear a truss for some months, to consolidate the part and protect the newly-formed tissues. The skin is firmly adherent to the subjacent structures at the point of the punctures and subcutaneous separation. He has since undergone a severe test as to the efficacy of the cure, in an attack of bronchitis, from which he has completely recovered, without in the least affecting the site of the hernia.

ART. 128.—*Case of Ligature of the common Iliac Artery.* By Dr. W. H. VAN BUREN, Surgeon to the New York Hospital.

(*New York Journal of Medicine*, Jan., 1857.)

CASE.—A professional gentleman, æt. 46, unmarried, of irregular, intemperate habits, and obese in person, first consulted Dr. Van Buren in May, 1853. He had noticed a tumor, then about the size of a hickory-nut, in the fold of the groin, over the course of the main artery, immediately below Poupart's ligament. The disease appeared to be spontaneous in origin.

"The tumor was now about the size of an ordinary child's head at birth, somewhat flattened upon its surface, occupying the fold of the groin, and extending upward along the course of the external iliac artery, beneath Poupart's ligament, the position of which was marked by a depressed line dividing the convex surface of the tumor into two equal halves. Its bulk was diminished very considerably by pressing the external iliac artery against the brim of the pelvis, and its pulsations were entirely checked by the pressure. The patient's abdomen was very fat, and continued pressure caused so much pain that I could not satisfy myself that the contents of the tumor were entirely fluid; but, from its rapid diminution, and also from its well-marked expansive pulsations, I concluded that it contained but a small proportion of coagulum.

"He was urged to submit to an operation, but hesitated and procrastinated until the latter part of November, six months longer, during which time the tumor had considerably more than doubled in dimensions. His aneurism had increased to a fearful size; it was still pulsating furiously, and its contents, as far as I could judge, were yet mainly fluid. Upon the most prominent part of its surface (above Poupart's ligament, where the great bulk of the tumor now lay) was a dark-colored eschar, larger than a half-dollar, and the remainder of its surface presented a dusky, livid hue. The limb below was swelled to double its natural size. His pain was constant, and at times very severe."

The ligature of the main arterial trunk supplying the tumor was determined on, and performed while the patient was under the influence of chloroform. The preliminary steps of the operation were somewhat embarrassed by the corpulence of the patient, but the vessel was soon reached, and carefully exposed for the space of three-fourths of an inch; and being recognized to be healthy, a ligature was readily thrown around it and tied, just half an inch above the bifurcation into internal and external ilia, with the result of at once arresting all pulsation in the tumor.

The operation, on the whole, was well borne; the shock was slight, and reaction immediate and favorable. The temperature of the limb was, for a few hours, lower than that of the other, but afterwards did not vary from that of the rest of the body. The patient did well until the close of the second day, when he had a chill, succeeded by fever; and the tumor, then reduced to one-third of its former size, became exceedingly tender and painful. These symptoms continued to increase, and the strength to decline, until death ensued at the close of the fourth day.

Post-mortem examination the next day.—The tumor and surrounding parts were found to be the seat of inflammation, which had resulted in suppuration. It contained recent coagula, with some layers, slight in thickness, of older date, and involved the external iliac to within an inch of its bifurcation. Wound had united throughout, except in the track of the ligature. There was no peritonitis; death having resulted from the irritative fever, which accompanied the suppurative inflammation in and around the aneurismal sac. On laying open the arteries in the vicinity of the ligature, a firm, conical coagulum was found, both above and below the place of deligation; the latter clot being more than half an inch in length and bifurcated—one portion being prolonged into the internal and the other into the external iliac arteries.

ART. 129.—*A new method of operating in post-fascial Abscess originating in the Iliac Fossa.* By Dr. GORDON BUCK, Surgeon to the New York Hospital.

(*New York Journ. of Med.*, March, 1857.)

This paper details the minute history of seven cases of "a class of abscesses which," says the author, "might easily be confounded with others, the prognosis of which is less favorable, and in which the same treatment might hasten the fatal termination to which they so generally tend. The particular mode of treatment adopted in these cases, it is believed, has not hitherto been generally employed. It was first suggested by a careful study of the surgical anatomy of the parts involved; and the successful results which have followed its use may claim for it a favorable consideration."

In the account of the first case, the author's description of his method of opening the abscess is as follows: "An incision, one inch in length, was made at a finger's breadth below the middle of the outer half of Poupart's ligament through the skin, subcutaneous tissue, and fascia lata; a probe was then passed deeply upward and backward, and on being withdrawn, was followed by an escape of pus; whereupon the track of the probe was enlarged, and a free outlet afforded for the contents of the abscess, with evident relief to the patient." In another case, after the incision "down through the fascia lata," a grooved exploring needle was passed upward and backward to the depth of about two inches; the opening was then enlarged and the matter withdrawn. In a third case, the incision through a tense and unyielding fascia was followed by the introduction of a trocar exploring needle in a canula, up and backward into a free cavity, from which pus escaped through the canula. In a fourth case, after the incision and passing of the needle, trocar, and canula, upward and backward behind Poupart's ligament, a freer outlet was secured by the enlargement of the track, with a narrow-bladed knife passed along the side of the canula before its withdrawal, and by the subsequent temporary employment of a tent."

Elsewhere Dr. Buck adds: "The treatment of abscesses in the iliac region, laid down by surgical authorities, does not differ materially from that of abscesses situated elsewhere. Means suited to produce resolution of the inflammation and prevent suppuration are advised in the early stage. When these have failed, such means as will hasten the approach of matter to the surface, and thus afford an opportunity to evacuate it by an opening, are then to be resorted to. In this form of abscess, the first object would be very rarely attained, owing to the remoteness of the seat of inflammation from the surface, and its confinement beneath a strong and tense fascia. For the same reason, the approach of suppuration to the surface would be very tardy, and hence great danger might be apprehended from the injurious effects of long pent-up matter, such as caries of the os ilii, as was threatened in Case No. 3, where denuded bone was encountered at the bottom of the abscess; also, deep burrowing along the walls of the pelvic cavity and openings into the peritoneum, intestines, vagina, and bladder. With the view of averting these disastrous consequences, a point was sought where an opening might be early established for the escape of the suppuration. The point selected possesses the advantage of safety in respect to its anatomical relations, it being remote from the peritoneum and important bloodvessels; it affords, also, the most dependent outlet.

The mode of performing the operation has been sufficiently described in the preceding narrative. No time should be lost in resorting to it; the absence of fluctuation need not deter from it. The phlegmonous character of the swelling; its anatomical relations to the iliac fossa and Poupart's ligament; the absence of disease of the lumbar vertebrae, and the coexisting retraction of the thigh; these points being clearly made out, are sufficient to warrant the conclusion that suppuration has taken place in the fossa behind the fascia.

"It is hardly necessary to add that the approved auxiliary means of abating inflammation, such as leeches, poultices, &c., together with appropriate constitutional remedies, are not to be omitted."

ART. 130.—On supra-pubic puncture of the Bladder. By M. FLEURY.

(Gazette des Hôpitaux, No. 59, 1858.)

A discussion upon this operation recently arose at the Paris Surgical Society, on the occasion of the presentation of a memoir by M. Fleury, in which he stated that he had often performed the operation with success, and considered it a very easy one.

M. Boinet regretted that the author had not stated whether his patients suffered consecutively from the adhesion of the bladder to the abdominal wall at the seat of puncture, and the consequent impediment to the functions of the organ.

M. Chassaignac could not admit the ill consequences said to result from these adhesions—such, indeed, not being observed in the case of the high operation for lithotomy, after which much more considerable adhesions take place. He did not, however, admit that puncture of the bladder was the simple operation it was stated to be by M. Fleury. When the abdominal parietes are very thin, and the bladder is much distended, few precautions are necessary; but in very fat or very muscular subjects, serious difficulties may arise. We have then to employ a very long trocar, and to plunge it in very deeply; and there is danger of wounding the opposite side of the bladder—an accident which has occurred to M. Chassaignac himself.

M. Lobert considered puncture of the bladder as preferable to forced catheterism, and has had recourse to it seven or eight times. He does not fear the accidents attributed to the retention of the metallic canula in the wound. The substitution of a gum-elastic catheter for this is sometimes very difficult, owing to the contraction or deviation of the track made by the canula, and the attempts may give rise to painful laceration and to infiltration. He therefore leaves in the canula for a fortnight, and then substitutes a caoutchouc tube. He observed, also, that the urine should not be allowed to run continuously from the canula. This should be plugged, and only opened three or four hours; otherwise the bladder, contracting too readily upon itself, may abandon the canula.

M. Deguise could not understand how any difficulty could arise in introducing a catheter by the track of a canula that had remained *in situ* for eight days. For his own part, he introduced a catheter on the first day, and changed it on the third or fourth, and he had never found any difficulty in so doing. He considered the operation a very easy one, providing that a preliminary incision be made down to the linea alba. He employs also a straight, in preference to a curved canula, the latter being liable to injure the *bas-fond* of the bladder or the prostate. The trocar is to be introduced horizontally, and a gum-elastic catheter is to be passed into the canula immediately on the withdrawal of the stiletto, and to be fixed *in situ* when the canula has been slid away upon it.

M. Huguier maintained that there were conditions which rendered this a very difficult operation, and among these is particularly the ascension of the prostate and *bas-fond* of the bladder. When the bladder becomes much distended, it rises, like the uterus in pregnancy, above the superior aperture of the pelvis; and in complete retention, the fluctuation felt through the rectum—so much spoken of by authors—cannot be felt, because the bladder becomes raised to a point beyond the access of the finger. Under these circumstances the prostate may be wounded, and that when in nowise enlarged. This occurred

to Richerand, who was a great advocate of the operation, and very skilful in its performance. To avoid this accident, the straight should be preferred to the curved trocar; and this should be passed horizontally above the pubis, instead of, as is usually directed, downwards and backwards. He seldom removes the canula before the seventh day, and has never known a straight instrument excite any irritation of the posterior wall of the bladder. He, however, takes the precaution of introducing a gum-elastic catheter into the canula, and fixing it there; so that its smooth, rounded extremity, furnished with its lateral eyes, may project at least a centimetre beyond the vesical extremity of the canula.

M. Giraldès could not agree with M. Huguier in admitting this ascension of the *bas fond*, the ease with which the organ may be punctured by the rectum showing that the relation of the parts is not changed. This rectal operation has very often been performed by Mr. Cock, of Guy's Hospital, who finds it of much easier execution than the supra-pubic puncture.

M. Lenoir has been struck with the facility with which some surgeons decide upon the performance of this operation. For his own part, although attached to the hospitals for twenty years, he has never had recourse to it but twice. He thinks it should be reserved for extreme cases, when the rupture of the bladder seems imminent. Then the bladder is very distended, and its puncture presents no difficulty. He entirely rejects the opinion of M. Huguier as to the ascension of the prostate. This gland is solidly fixed, and if it sometimes extends above its ordinary level, it is only because it has become hypertrophied. It is possible, that when it is greatly hypertrophied, it might become punctured by a curved trocar; but M. Lenoir never exposes himself to such an accident, because he never punctures the bladder for prostatic retentions. Such an obstacle being permanent, there is no chance of re-establishing the natural course of the urine, and the patient is exposed to the inconvenience of a hypogastric fistula for the rest of his life. In such a case, forced catheterism, by means of a conical instrument, is far preferable. It is an intra-urethral puncture through the prostate; and a false passage, an intra-prostatic fistula, is produced that will fulfil the functions of the prostatic portion of the urethra. The operation completed, the conical catheter should be replaced by one in gum-elastic—a practice much preferable to leaving in the metallic instrument.

M. Huguier added, that although the anterior portion of the prostate is fixed by ligaments and aponeuroses, which do not allow of its rising, its posterior part is, in fact, drawn up during distension of the bladder. The finger cannot then feel the globular or cylindrical fluctuation which has been described as one of the principal signs of retention; but this does not prevent a long concave trocar, directed backwards and upwards, from reaching the bladder.

M. Chassaignac also admits this elevation of the posterior part of the prostate. He thinks the preliminary incision of the integuments, as recommended by M. Deguise, might give rise to infiltration; and he rejects puncture by the rectum as dangerous, because of the risk of penetrating into the recto-vesical cul-de-sac of the peritoneum.

ART. 131.—*The Hypogastric Operation for Stone, aided by Cauterization.*

By M. VALETTE, Surgeon to the Charité Hospital at Lyons.

(*Lancet*, Oct. 16, 1858.)

M. Valette has recently published an essay of thirty-three pages on the above operation.

The author uses chloride of zinc paste to favor adhesion between the abdominal walls and those of the bladder. The operation consists of two stages: in the first, the bladder is reached by successive cauterizations; in the second, the extraction of the stone is effected.

The patient being narcotized, an incision about two inches long is made in the mesial line starting from the pubis; when the recti are reached they are separated with the director. A catheter, containing a stilette armed with a trocar extremity (*sonde à dard*), is then introduced into the bladder along the urethra, and the point of the stilette is made to pass out of the bladder between the recti muscles about one inch above the symphysis. A platinum wire is then

passed through an eye in the stilette, situated about three quarters of an inch from its point. The stilette is then made to re-enter the bladder, and is thrust out again two-thirds of an inch lower down than the spot of its first emergence. The wire which has reappeared with the stilette is then taken out, the latter is drawn back into the bladder, and the catheter removed altogether.

At the bottom of the wound a piece of chloride of zinc paste, half an inch long and a few lines broad, is then placed; cotton wool is put over and fixed upon it by bringing together and tying the two ends of the platinum thread over it. A compress and a roller complete the dressing.

The chloride is removed in twenty-four hours; the eschar cautiously incised, taking care not to include the healthy structures beneath it, and a new piece of caustic is placed in the wound. Four or five such applications are generally necessary before the bladder is reached; oozing of urine is a sign that the eschar includes the vesical walls and that the cauterizing stage is completed.

The second stage of the operation is now entered upon by introducing the sharp stiletted catheter into the bladder along the urethra, the end of the instrument (acting then as an ordinary catheter) being made to emerge through the vesical aperture, which allows of the oozing of urine. The catheter is intended as a director for the introduction of the "lithotome caché." This latter instrument is then passed into the bladder through the above mentioned vesical aperture, and the latter is made larger by removing the instrument, which cuts with the blade pushed out by the spring. When the lithotome caché is removed, the aperture may, if necessary, be made larger by means of a probe-pointed bistoury. Lateral incisions may even be made, if found desirable. The stone is then removed by means of the gorget and forceps.

M. Valette has operated in this manner upon four boys, and with complete success; one of the patients having, however, died some time after leaving the hospital, from adynamic intermittent, the wound being quite healed and micturition normal. The ages were respectively five, seven, eight, and ten years. The urine passed entirely through the urethra in from sixteen to twenty-one days after the operation; and the wound of the abdomen was healed, on an average, towards the thirty-fifth day. The first two patients were kept under observation nearly two months after the closure of the wound; their health improved all the while, and the vesical contractions seemed to be effected with as much vigor as before the operations. The author concludes with these sensible words: "The path is now open; it is to be hoped that other surgeons will engage in it, and that facts will soon be numerous enough to enable us to judge definitely of the value of the hypogastric operation for stone, performed with the assistance of cauterization."

ART. 132.—On the application of Sutures to the Bladder in the High Operation for Stone. By Dr. LOTZBECK.

(*Deutsche Klinik*, No. 15, 1858; and *Med.-Chir. Review*, Oct., 1858.)

Dr. Lotzbeck, of Tübingen, observes that although the high operation has of late been more frequently performed than formerly, it has not obtained that admission into practice which its advantages might have led us to expect. Professor Günther's statistics of the high operation have sufficiently shown that the fear of urinary infiltration has been exaggerated. The object of this paper is to advocate the employment of the suture of the bladder, a practice revived of late, and opposed by Bardeleben, Pitha, and others, upon mere *a priori* reasonings. To them may well be opposed the practical experience of Professor Bruns, of Tübingen, who has employed sutures in numerous cases, without finding much difficulty in the execution of the operation or danger in the result.

A case is given in illustration. A large stone being found in the bladder of a child eleven years old, it was determined to remove it by the high operation. After the bladder had been filled with lukewarm water, a vertical incision was carried two inches above the symphysis, while two lateral incisions, half an

inch long, detached the pyramidales from their insertion in the pubis. Professor Bruns has on several occasions operated by a transverse incision in place of a vertical incision; but when the stone is large, he finds that such incision cannot be made long enough without injuring the inner crus of the outer ring, and thereby causing a risk of future hernia. Indeed, the author knows of a case in which a double hernia followed such incision of the two *crura interna*. The opening into the bladder and removal of the stone (which weighed nine drachms and a half) were rapidly accomplished. The bladder was somewhat raised by a hooked forceps, and four points of suture were inserted into its walls (avoiding the mucous membrane) by a strongly curved needle, one end of the sutures being cut close and the other brought out externally. The keeping the external parts of the incision well apart was much facilitated by an instrument resembling the dilating forceps used by Trousseau in tracheotomy, the help of an assistant being thus dispensed with. In order to be certain that the edges of the wound in the bladder were closely applied, it was filled with water injected by the urethra, and not a drop escaped by the wound. After the operation was completed, an elastic catheter was left in the urethra, which allowed of the easy discharge of the urine. Not a drop of this fluid issued by the abdominal wound, nor of the water that was frequently injected by the urethra to cleanse out the bladder. The sutures came away easily on the sixth or seventh day, and on the tenth the catheter was entirely removed, having been occasionally so for some days previously. The urine could now be held for a long time, and discharged in a good stream. The cicatrization of the wound in the abdomen took place in the course of three weeks.

ART. 133.—*Some trials made to facilitate the removal of Stones from the Urinary Bladder.* By Dr. A. BUCHANAN.

(*Glasgow Med. Journal*, July, 1858.)

Among the advantages which attend the rectangular operation of lithotomy, one is to render more easy the extraction of the stone in the ordinary way, with the aid of the forceps. This depends upon the nature of the operation, which, by diminishing, as far as can be done, the distance between the opening made in the bladder and the external aperture of the operation wound, brings the stone more within reach, and thus facilitates the ordinary manipulations for extraction. Of the extent of the facilities so obtained, those only can judge who are familiar with this operation, and have had opportunities of comparing it with the old lateral operation, which it has for many years past superseded in and around Glasgow—the only field on which hitherto the two operations have come into competition with each other. Still, however, even with these facilities, there is usually more delay and more difficulty experienced in laying hold of and extracting the stone, than in making the incision necessary to get at it. It is therefore chiefly to this second stage, that any attempt to simplify and improve further the operation of lithotomy should at present be directed.

Influenced by these views, Dr. A. Buchanan has been led to make trial of various methods of removing stones from the bladder; and he now proposes to bring under the notice of those who take an interest in such researches, and understand the capabilities of the new mode of operating, one or two of the methods which he tried, and thought most promising of good results:—

Extrusion with the fingers.—The first method is, perhaps, more curious than useful. He found that after making the usual incision, according to the rectangular method, it was quite possible to remove certain stones with the fingers alone, without the aid of any instrument whatsoever. Stones of a spherical shape and smooth surface, like marbles, even though of large size, could readily be so removed; but to stones of a different shape, and of rougher surface, this method was found to be inapplicable, unless the opening in the bladder were of large size. The following remarks will render the mode of manipulating easily understood:—

The forefinger of the right hand, introduced into the bladder through the operation wound, readily reaches the stone, and has it so much under command, that it can easily be brought down into the triangular space at the neck of the

bladder, and placed there so that its longest diameter—if it be not spherical—may be parallel to a line at right angles to the middle of the incision of the bladder. This is the position most favorable for the extraction of the stone, and by the pressure of the forefinger it can be retained steadily in that position. Holding it, therefore, firmly, the fore and middle fingers of the left hand are introduced into the rectum, and passed up beyond the prostate, when, upon pressing them forwards, the stone is distinctly felt by them; and it is so firmly grasped between these two fingers and the forefinger of the right hand, as irresistibly to suggest to the mind the attempt to extrude it from the bladder, by means of the two fingers of the left hand pressing it from behind, while the forefinger of the right hand guides it outward, and regulates the direction of the pressure.

In this way, as stated above, smooth and spherical stones are readily removed, but only these, unless with a larger incision than usual. The process is, therefore, of such limited utility, that it would not have been worthy of the space the description occupies, had it not been that to bring the stone and fingers into the positions just described is often an important preliminary to other methods of extraction; as to that next to be described, and to the ordinary method of extraction with the forceps, if it be the latter, instead of grasping through the bladder to find the stone, and attempting to seize it in whatever position it lies, the forceps is at once laid over the stone in a known position, and the stone is thrust between the blades by the fingers of the left hand, and laid hold of in the most advantageous direction; that is, with its long diameter parallel to the blades.

Landing-net.—The great majority of stones cannot be extracted by the fingers alone, but require the aid of an instrument. Of various instruments for the purpose which Dr. Buchanan had constructed and tried, the one which seemed to me to answer best the ends for which it was devised, he named a *landing-net*, from its resembling very much, in its mode of operation, the tackling of the same name, with which the angler secures the fish he has hooked and brought to the water's edge. He had this instrument first made with a single handle, and an oval elastic rim of whalebone, to which the net was attached. But finding this not to answer well, he returned to a construction differing only from that of the common forceps, furnished with a net, in the modifications to which he subjected it. The handles are in no respect different, but the blades have altogether changed their character, as they are no longer intended to grasp the stone, but merely to open and shut the mouth of the sac which is attached to them. In conformity with this new destination they are rounded and attenuated, so as to resemble stout stocking-wires. They are curved, so as to form together, when closed, an oval orifice to the sac; and they terminate in two rounded knobs, like peas, which prevent them from doing any injury when they are introduced into the bladder, or when opened and shut within it.

An instrument of this kind lays hold with great facility of stones of the size of those usually met with in the bladder. On placing the mouth of the instrument over the stone, and making downward pressure, the mouth tends to open spontaneously to admit the stone; and next, the hand holding the instrument, which had at first yielded to, and gently assisted the distending force, now closes the mouth, so as to include and secure the stone within the sac. In this way, without any further preliminaries a stone may be laid hold of within the bladder, the metallic knobs detecting the place of the stone; and these knobs being carried to the further side of it, the mouth of the sac lies over the stone, and, on downward pressure being made, will open to receive it. This method, however, is far inferior in precision and facility of execution to the following method, which he recommends in preference:—

Place the stone and the fingers in the positions recommended for the process first described; that is, the stone lying immediately behind the opening in the bladder, with its long diameter at right angles to the direction of the opening; the index finger of the right hand introduced through the wound, and resting on the stone, and the fore and middle fingers of the left hand in the rectum, ready to press upon the stone from behind. Let the finger of the right hand be now withdrawn, and the instrument introduced in its place. The stone is

now pressed by the fingers of the left hand against the two wires forming the mouth of the sac, and there separating the stone is forced into the sac itself, and secured by the shutting of its mouth. The two slender wires of the sac add little to the bulk of the stone, so that any difficulty experienced in extracting it can depend only on a disproportion between the size of the wound and the stone which is to pass through it; and if that cannot be overcome by address and moderate traction, it must be met by the enlargement of the wound.

ART. 134.—*A Statistical Report of Forty-six Operations for Stone in the Bladder, with the best method of performing Lithotomy.* By PAUL F. EVE.

(*Nashville Journal of Med. and Surg.*, Aug., 1857; and *North American Medico-Chirurgical Review*, July, 1858.)

The first part of this paper is occupied with a synopsis of twenty-one cases, in continuation of a report of twenty-five similar cases which was published in the April number of the 'Am. Journ. of Med. Sciences' for 1852.

"Since October, 1841, the date of my first operation, a period of a little over fifteen years, I have operated on forty-six cases of urinary calculi, thirty-eight of them under chloroform, without an unpleasant result from it, and have removed one hundred and sixty-six stones. The following tables will present the statistics of these cases in regard to the date, age, sex, race, residence, method of operation, number of calculi, and the result of each one.

Statistics of Forty-six Operations for Urinary Calculus.

No.	Date.	Age.	Sex.	Race.	State.	Operation.	No. of calculi.	Result.
1	1841	8	Male	Mulatto	Ga.	Bilateral	1	Speedy recovery.
2	1843	6	"	White	Ga.	"	1	" " "
3	1843	3	"	Mulatto	Ga.	"	1	" " "
4	1843	3	"	White	Ga.	"	1	" " "
5	1845	34	"	"	Ga.	Lithotrity	1	Recovery.
6	1846	24	Female	Black	Ala.	Vaginal section	1	Speedy recovery.
7	1847	20	Male	White	Ga.	Bilateral	1	" " "
8	1847	20	"	"	Ga.	"	1	" " "
9	1848	5	"	"	S. C.	"	1	" " "
10	1848	5½	"	"	S. C.	"	1	" " "
11	1849	50	"	"	S. C.	"	117	" " "
12	1849	6	"	Black	S. C.	"	1	" " "
13	1849	4	"	White	Ga.	"	1	" " [nearly healed.
14	1849	10	"	"	Ga.	"	1	Died of dysentery when wound
15	1850	12	"	"	Ga.	"	None	Speedy recovery.
16	1850	7	"	"	Ga.	"	1	" " "
17	1851	4	"	"	S. C.	"	1	" " "
18	1851	7	"	"	Ga.	"	1	" " "
19	1851	7	"	"	Ga.	"	2	" " "
20	1851	77	"	"	Ga.	"	3	Death in sixty hours.
21	1851	24	"	"	Tenn.	"	1	Speedy recovery.
22	1851	5	Female	"	Ky.	"	1	" " "
23	1852	7	Male	"	Tenn.	"	1	" " "
24	1852	24	"	"	Tenn.	"	1	Death sixth day.
25	1852	65	"	"	Tenn.	"	1	Death about thirteenth day.
26	1853	3	"	"	Tenn.	"	1	Speedy recovery.
27	1853	4	"	"	Tenn.	"	1	" " "
28	1853	10	"	"	Ga.	"	1	Recovery.
29	1853	20	"	"	N. Y.	Lithotrity	1	Speedy recovery.
30	1854	34	"	"	Ga.	Bilateral	2	Recovery.
31	1854	12	"	"	Tenn.	"	1	Speedy recovery.
32	1854	7	"	"	Tenn.	"	1	" " "
33	1854	23	"	"	Ga.	"	1	" " "
34	1854	26	"	"	Ga.	"	1	Recovery.
35	1855	5	"	"	Tenn.	Lateral	1	Speedy recovery.
36	1855	16	"	Mulatto	S. C.	Bilateral	1	" " "
37	1855	9	"	White	Tenn.	"	1	" " "
38	1855	66	"	"	Miss.	High operation	1	" " "
39	1856	2½	"	"	Tenn.	Bilateral	2	" " "
40	1856	11	"	"	Tenn.	"	1	" " "
41	1857	26	"	"	Tenn.	Dilatation	1	" " "
42	1857	22	"	"	Tenn.	Bilateral	1	Slow recovery.
43	1857	19	"	"	Tenn.	"	1	Speedy recovery.
44	1857	8	"	Black	Tenn.	"	1	" " "
45	1857	61	"	White	Tenn.	"	1	" " "
46	1857	9	"	"	Tenn.	"	1	" " "

"Rejecting the case of death from prevalent dysentery when the wound was nearly healed, the mortality exhibited by these statistics is 1 in 15 $\frac{1}{2}$, and 35 of 46 had a speedy recovery."

Summary of the Forty-six Cases.

No. of cases.	Age.	Sex.	Race.	Operation.	No. of stones.	Result.
	27 under 15	44 males	40 whites	40 bilateral	117 in one	Death occurred from dysentery
	15 adults	2 females	3 mulattoes	1 lateral	3 in one	in one of the 27 under 15.
	1 aged 61		3 blacks*	1 vaginal	6 in three	Death in one of the 15 adults.
	1 " 65			1 high	2 each	Death in 2 of aged.
	1 " 66			1 dilatation	40 in 41 $\frac{1}{2}$	36 had a speedy recovery.
	1 " 77			2 lithotrixy		
46	46	46	46	46	166	

Dr. Eve informs us that he "had not declined to operate in a single case under his care where, in the opinion of others, it ought to have been done. In one instance, a patient died a few days after being placed on the table, though no operation was attempted, and two others expired after leaving home to seek relief. I know now that I operated on two cases which were at the time beyond all expectation of a cure, and another one, it is possible, might have been relieved by lithotrixy or the high operation.

"As to the best method of performing lithotomy, it is very certain, as in many other operations, that no one in particular should be adopted to the exclusion of all others. Each case is a problem to be solved best by a careful study, and the adaptation of therapeutic means to meet all its peculiarities. While perfection may not be attained by any plan yet proposed for removing stone from the bladder, that operation attended with the least risk to the patient and followed most generally with success, is the one to be selected.

"I acknowledge, in the child or boy up to about fifteen years of age, that an experienced surgeon may, with the scalpel alone, make a capital operation and obtain good results; but in a majority of cases, and under ordinary circumstances, I have little doubt, when the method about to be described is understood, it will be admitted to be the best. My staff has, at the upper part of its groove, an opening large enough to admit the beak of the lithotome, and which is there so contracted as to prevent the escape of the cutting instrument until it arrives near the extremity, and has consequently entered the bladder. It acts, in other words, as a safe and certain director to the lithotome. It guides it with unerring precision into the bladder, and thus prevents the rectum being wounded, or the cutting instrument passing into the space between these two organs—an event which has too often happened.

"I have also added a slight modification to the double lithotome cachée. I found the shoulder of it too large, especially for children, to enter freely upon the staff when in the urethra. To prevent laceration of this canal, I have had two small blades put upon the shoulders, so that the instrument may cut its way into the bladder.

"In operating for urinary calculus, I make an inverted λ incision in the perineum; thus, with a scalpel, beginning at the bulb of the urethra, an incision three-quarters of an inch in length is made to the median line, then the knife turned to the left, to terminate about midway between the anus and tuberosity of the ischium. A similar leg to the inverted λ is then made on the other side, but with its cutting edge turned up, and arriving at the median line, the point of the scalpel is entered down to the staff in the urethra, upon which the lithotome is now conducted into the bladder. The staff being removed, and the half-turn given to the lithotome, the blades are expanded and the bilateral sec-

* I have had only one colored patient of the West.

† In one case I failed to remove the stone. This was in 1850, and two months ago the patient arrived here, seeking relief from symptoms of urinary calculus, under which he has labored ever since I operated upon him. He is a member of the class in the literary department of our university.

tion made in withdrawing this instrument, which will be found to correspond very nearly with the external inverted Δ incision previously made in the perineum.

"The advantage of this external incision over the crescentic one of Dupuytren is, the facility with which it may be made and the urethra opened upon the staff. I make as small an opening in the prostate gland as will permit the extraction of the stone, knowing from experience the parts may be considerably dilated by gentle persevering traction with the forceps grasping the calculus. And the only unpleasant occurrence ever met with in the treatment of cases thus operated upon, placed under my care, has been hemorrhage; and how this may be arrested I have described. The development of the vessels about the neck of the bladder and perineum in calculous patients, and the irritation created by the pressure of urine over the wounded surface, will account for the special and unavoidable liability to bleeding after lithotomy."

ART. 135.—*Case of Calculus in the Bladder, in which there was a communication between the Bladder and Intestine.* By Mr. CHARLES HAWKINS, Inspector of Anatomy, &c.

(*Proceedings of the Royal Med. and Chir. Society, June 22, 1858.*)

CASE.—In July, 1857, a gentleman, fifty-five years of age, consulted the author suffering with all the symptoms of stone in the bladder in a most aggravated form, the urine being alkaline, and depositing much ropy mucus. He gave the following history of his case.

"In February, 1855, I first discovered that I passed in my water a substance having a most offensive smell. My medical attendant came to the conclusion that it was fecal matter, and that a communication existed between the bladder and bowel. During the year 1856 I ceased to pass any of this substance, but symptoms of disease in the bladder set in, and continued during the whole of the year. In the beginning of the year 1857 these symptoms much increased, and my general health became much impaired."

Notwithstanding the history of the case and the state of the bladder, the author determined to attempt to remove the stone by lithotripsy, as the patient was sinking from his severe sufferings. The first and second time of operating the patient was placed under the influence of chloroform (not so on future occasions, as he bore the operation remarkably well without it). The bladder held sufficient water, and a very large stone was readily seized and crushed.

On the day following the fourth operation, which took place three weeks after the first, the patient had an attack of retention of urine, which lasted some hours (of which the author was not informed), when suddenly he passed a large quantity of urine and blood through the rectum. It was then evident that the opening which had formerly existed between the bladder and intestine had given way, although no opening could be detected by the finger on this or any other occasion. In a few days, having rallied from this accident, he left London, his general health being very much improved. He returned to London in October, and although the opening still existed, the bladder retained six or eight ounces of water. After two operations, which gave him no inconvenience, he went home.

In January, 1858, symptoms of stone reappearing, the bladder was examined; a small stone found and crushed. In a fortnight he returned home quite well, and has continued so ever since; but passing some fecal matter with his urine from time to time, he was directed to wash out his bladder with warm water daily, to prevent any accumulation.

The stone was composed of the triple phosphate, having some vegetable matter as a nucleus.

The interest of this case depends on the circumstance of the communication between the bladder and intestine having taken place without causing the patient any inconvenience, until the feces were detected in the urine; the successful issue of lithotripsy where the stone was so large, the bladder in such an unhealthy condition, and a communication existing between it and the intestines.

ART. 136.—*Lithotritic instruments in cases of enlarged Prostate.*

By Mr. COULSON, Surgeon to St Mary's Hospital.

(Lancet, Jan. 30, 1858.)

In an interesting paper, Mr. Coulson explains the necessity which exists for employing a peculiar lithotrite in patients who have stone and enlargement of the prostate.

"The changes," he remarks, "in the genito-urinary organs produced by enlargement of the prostate, and requiring the use of peculiar lithotritic instruments, may be explained in a few words. Many men who have passed the middle period of life, labor under some enlargement of the prostate, and such a condition of the gland seriously interferes with the functions of the bladder; but, for my present purpose, it will suffice to consider the effects produced on the urethra and floor of the bladder by any considerable swelling of the prostate. A consideration of these effects will at once show in what manner the modified instruments that I employ in such cases are, of necessity, required. A constant effect of prostatic enlargement is elongation of the urethra. This lengthening of the canal may be connected with several conditions of the enlarged gland; it is, however, mainly confined to the prostatic portion of the urethra, and occurs in one of two ways. As the enlargement pushes up the neck of the bladder under the arch of the pubes, it necessarily draws up and elongates the vesical end of the urethra; or, while the gland is slowly enlarging from before backwards, that portion of the urethra which traverses it must necessarily follow the abnormal development of the prostate, and become elongated. In his recent work on the prostate,* Mr. Thompson observes, 'that in some preparations which he examined, the urethra measured three inches from the orifice of the bladder to the membranous portion, instead of an inch and a half, which is the normal length.' In all cases of this kind, more especially when the middle lobe is chiefly affected, the orifice of the bladder is thrown backwards in proportion to the development of the enlarged lobe; and hence the point of any instrument used is apt to catch against the superior wall of the canal before it enters the bladder. This is an obstacle which the surgeon is very likely to meet with; and I may add, the shorter the instrument he employs, the more likely is the obstacle to occur.

"The effects of the morbid growth on the cavity of the bladder also require some notice. These effects, so far as regards my present subject, will depend on the degree of prostatic enlargement, and on the lobe principally affected. When the enlargement is chiefly confined to the middle lobe of the prostate, which encroaches on the floor of the bladder, the capacity of that viscus at its lower part is proportionably diminished. I have seen a considerable part of the bladder occupied by the enlarged prostate; and, in extreme cases, preparations of which are preserved in our museums, the morbidly developed gland has occupied a great portion of the vesical cavity. In all the cases now alluded to, the effect of this extension of the middle lobe of the prostate backwards is to form a reservoir or sac behind the enlarged gland. The floor of the bladder is here greatly depressed; the urine remains as in a sac; and here a calculus may be lodged, the detection of which is often extremely difficult. I have, at the present time, under treatment a patient who has a stone concealed behind an enlarged prostate, the existence of which had escaped the notice of those surgeons by whom he had been previously examined.

"The necessity of employing special sounds and catheters in cases of enlarged prostate is well known to all practitioners. The increased length of the urethra, and the encroachment of the enlarged lobe on the floor of the bladder, compel the surgeon to use a much longer catheter than usual. In prostatic enlargement, the ordinary catheter will not penetrate into the bladder; and the experienced practitioner at once suspects the existence of the complaint from this circumstance. To enter the cavity of the bladder, he takes a catheter from two to four inches longer than the one in ordinary use; and with an instrument

* 'The Enlarged Prostate,' p. 23, 1858.

of this kind, he succeeds, after having passed it about twelve inches beyond the orifice of the urethra. The same holds good with regard to the sound. Thus the stem of the ordinary sound measures seven inches and a half; the stem of a moderately sized prostatic sound measures nine inches and a half. An ordinary catheter now before me measures nine inches and three quarters to the point. A prostatic catheter measures thirteen inches and a half. From fourteen to sixteen inches is the length recommended in standard works.

"In cases of enlarged prostate, then, the surgeon requires a long catheter of peculiar shape to draw off the urine. For the same reason—viz., the increased length of the urethra, and the depression in the floor of the bladder—he will require a long lithotrite of peculiar shape, in order to catch and crush the stone with ease to himself and safety to his patient.

"If the long prostatic catheter be expedient, the long prostatic lithotrite is, *a fortiori*, indispensable. The necessity of employing a longer instrument than usual in such cases will, I imagine, be generally admitted; and if I insist on it here, it is because our standard works do not allude to the point—an omission of which I have been no less guilty than others, and which I would now repair. The ordinary lithotrite of Charrière measures ten inches from the root of the stem to the eye; the chord of the curve, from the eye to the point, is one inch and three-eighths. The long lithotrite, manufactured expressly for me by Charrière, measures twelve inches in the stem, and one inch and three-eighths in the curve. The stem of Weiss's ordinary lithotrite measures nine inches; the stem of the long instrument which he has made for me measures ten inches and a half; the beak is the same length in both, about an inch and a half.

"I need hardly occupy much space in dwelling on the necessity of the surgeon being provided with a long instrument of this kind, and of the many advantages which he will derive from its use. I can only say that I have had cases which, I feel convinced, I could never have conducted to a successful termination without it. It should be remembered, that with an elongated urethra, the distance between the external and internal orifices of the canal is increased by at least an inch. The enlarged prostate, again, occupies the front part of the floor of the bladder, on which it encroaches another inch or more. The calculus lies concealed in a sort of pouch behind the enlarged lobe, which rises like a barrier before it. Under these circumstances, it is evident that the surgeon will require an instrument longer than that in ordinary use, by two or three inches. The common lithotrite will either not pass into the cavity of the bladder, or, if it does, after having been forced up to the handle, the motion of its curved part will still be greatly impeded by the prostate.

"In some of my cases the common instruments were not sufficiently long, and it became necessary to push them up to the shoulder before I could turn the point in the necessary direction. With the long lithotrite, on the other hand, the surgeon gets readily into the bladder; but to overcome the impediments likely to arise from an enlarged middle lobe, a peculiarly formed beak is necessary, and the pelvis must be raised.

"The beak or curved part of the lithotrite must be short, and the curve sharp. With an instrument of this kind, the surgeon will often be able to 'fish up the stone from the depression behind the enlarged prostate,' in the manner described in the last edition of my work on the bladder.* By turning the point down, and elevating the handle of the instrument, the stone will commonly be found in the position already mentioned. When the middle lobe of the prostate is much enlarged, and extends some way into the bladder, the point of the instrument cannot be turned downwards in such a way as to reach the stone. The plan from which I have derived most benefit in such cases is that of raising the pelvis of the patient in such a way that the calculus shall be displaced towards the posterior wall of the bladder. Especial care must be taken that the pelvis itself is raised, and not merely the lower extremities. By adopting this plan, I have, on several occasions, immediately caught the

* 'The Diseases of the Bladder and Prostate Gland,' p. 463. Fifth Edition. London, 1857.

calcoli, which lay concealed behind the prostate as long as the patient retained the ordinary position. Every lithotripsy couch should be provided with some mechanical contrivance for executing this proceeding quickly. The sufferings occasioned by the attempt to seize a stone behind an enlarged prostate, in the ordinary way, and after strong elevation of the handle, are often of the most distressing kind, and cannot certainly contribute to the well-doing of the patient. On the other hand, the ease with which the reversed beak falls on the stone is remarkable; but the manipulation requires a cautious and practised hand."

ART. 137.—*Case of fibrous Polypus of the urinary Bladder, with remarks, &c.*
By Mr. BIRKETT, Surgeon to Guy's Hospital.

(*Proceedings of the Royal Med. and Chir. Society, May 25, 1858.*)

The new growths developed in the bladder may be thus described:—

1. Papilloma.
2. Fibrous polypus.
3. Villous growths.
4. Epithelioma.
5. Carcinoma: *a*, infiltrating; *b*, tuberosus.

It was upon the second class that the author desired to concentrate attention. This growth resembles in every anatomical particular the "nasal polypus," which is the true type of the disease. These growths occur very rarely, and the author can find only ten cases, the description of which accords with that about to be given. Warner, Baillie, Walter, Crosse, Savory, Chopart, and Petit, each relate a case; and to these three others are added. A girl, *æt.* 5, came under the author's care in Guy's Hospital, in December, 1857. She was in a most cachectic state; and her mother said she had been ill about two months. At the time she complained of pain in the hypogastric region, which was soon followed by dysuria, and at last retention of urine. A catheter was used to relieve this difficulty. When admitted the urine dribbled away; but unless a catheter was introduced, the bladder became immediately distended. The urine was ammoniacal, contained mucus and blood, and was very offensive. The constitutional powers of the patient were much reduced; but after nutritious diet and tonics, the child's powers rallied, and she became a little stronger. In order to examine the bladder with more care, the patient was placed under the influence of chloroform, and then the contracted bladder was discovered to be filled with a solid growth, a portion of which had dilated the urethra, and protruded between the vulva. A ligature was applied around the pedicle of the protruding portion, which eventually sloughed off. Some days after this the patient became very ill, and died on the twenty-fifth day after admission.

Necropsy.—Suppuration in right kidney, dilated ureters and pyelitis. The walls of the urinary bladder were hypertrophied, and its cavity was dilated. Attached to the interior wall of the viscus and the mentus, were pedunculated growths, which had dilated the mentus, and protruded through it. These consisted of delicate fibre-tissue covered with epithelium.

The progressive stages of the disease were next alluded to, and the cause of death in this, as well as in other cases of a like nature, traced to irritation excited along the track of the urinary mucous membranes.

Remarks were then made upon the differential diagnosis of this disease, and those known by the name of "vascular fungus," "epithelioma," and "medullary cancer;" and it was observed that, while in polypus little or no hemorrhage occurred, bleeding, on the contrary, was diagnostic of the other growths. From calculus these growths might be distinguished by the absence of sound. A foreign body might be detected in the bladder by the sense of touch, but it could not be sounded. In reference to treatment, the morbid specimens demonstrate that very little hope can be entertained of doing good by surgical interference; but when practicable, a ligature might be safely placed around the pedicle of the growth.

The paper was illustrated by drawings of the morbid specimen in its fresh state, as well as by two preparations of the disease itself.

ART. 138.—*A simple palliative remedy for Varicocele.* By M. NÉLATON.

(*Journal of Pract. Med. and Surgery*; and *Dublin Hospital Gazette*, July 15, 1858.)

The radical cure of varicocele has been much spoken of, and the various operations recommended for this end have naturally been grounded on motives borrowed either from the causes or from the consequences of the disease. According to M. Nélaton, experience has not in any way sanctioned these motives; and it is time to put an end to the merely theoretical inventions brought forward on the subject of this malady.

It is unnecessary to follow the professor in his strictures on the opinions expressed on the supposed causes of varicocele. The chief point to be borne in mind on this subject is, that the varicose condition of the veins of the funis coincides with the period of life during which the function of generation is in possession of its greatest activity. Varicocele is a complaint special to the second epoch of youth, and tends to decrease in proportion as the subject advances in years.

M. Nélaton being intrusted with the examination of the youths destined to the imperial military schools, found that one or two in every fifty were affected with varicocele. On the other hand, while he was at Bicêtre, out of a population of 5000 old men, the same surgeon met with scarcely a single case of the same complaint. The fact should not be forgotten.

Another question is deserving of the most serious attention: it is the influence supposed to be exercised by the varicocele upon the anatomical structure and functions of the testis. The testicle corresponding to the varicocele is said to decrease in size and become atrophied. Wishing to ascertain the truth of this assertion, M. Nélaton examined a large number of cases of varicocele, and recognized that, in point of fact, the testis was frequently smaller on the diseased than on the healthy side; but he obtained no proof whatever that such difference in volume was the consequence of the malady. Very few men with healthy organs present perfect uniformity on both sides; it is, therefore, highly probable that in subjects affected with varicocele, the difference of size may have been congenital. The question of mere volume is, besides, of very secondary importance to the patients; that which interests them more directly is, the preservation or diminution of the genital powers. Whether such individuals preserve their local faculties is a point which has not been inquired into, and which it is important to investigate. On examining the many subjects who have sought his advice for varicocele, M. Nélaton has acquired the conviction that the disease in no wise impairs the power of reproduction; and that if the testicle has decreased in volume, such decrease must have in all cases been very limited, the function having suffered no diminution in its activity.

Hence the alleged atrophy of the testis does not constitute, for M. Nélaton, a sufficient motive to justify any operation. He requires other reasons to resolve upon adopting such a course. The excessive volume of the varicocele is not one of these. Numberless patients are met with, who, notwithstanding the enormous magnitude of the scrotum, take, without much inconvenience, the most violent exercise. Others, on the contrary, suffer extremely from very small varicoceles. It is the presence of tenderness and of pain, carried to such a degree as to interfere with professional avocations, which must be inquired into, whenever the expediency of an operation for the cure of the disease has to be discussed.

With this exception of pain, and of the serious interference of the disease with the daily occupations of the patient, which exclusively points to the necessity of surgical action, M. Nélaton refrains from operation; and his reserve is justified by the daily observation of facts which show, as we have above stated, that varicocele is a malady belonging to youth, which has a natural tendency to disappear with advancing years. At this very moment a case in illustration of this singular phenomenon may be observed in the wards. A man suffering

from a canceroid affection of the bladder was admitted into the hospital. At the same time he was found to bear a varicocele, which has now lasted eight or ten years. It is neither painful nor troublesome; every year its size decreases, and it will, in all probability, soon disappear altogether.

Such cases distinctly point out what should be the practitioner's conduct. It is clear that he must wait, and be satisfied with the use of such palliatives as may diminish the discomfort attendant upon the complaint.

Two years ago, a young man with varicocele entered this hospital. Three years previously pain was complained of in the left inguinal ring; shortly afterwards the scrotum swelled on the same side, and became very tender. A varicocele was recognized, and the patient was operated on at Vitry-le-François, with Breschet's forceps, to which was added the loop of M. Regnaud, of Toulon. Notwithstanding the ability of the operator, and the care bestowed upon the case, the cure was not permanent, and after a lapse of two years this individual presented himself to M. Nélaton in the following condition: The left side of the scrotum, much increased in size, was the seat of venous enlargement. A pediculated hernia, distinct from the varicocele, existed on the same side. The hernia was reduced, and, as a remedial agent of a palliative description, M. Nélaton applied to the varicocele M. Richard du Cantal's caoutchouc ring.

This apparatus is the inoffensive realization of Sir A. Cooper's idea. The testis and the venous chord being pushed back towards the ring, the dependent portion of the scrotum is inclosed in an elastic belt, which surrounds it like a bracelet. For this purpose a strip of common caoutchouc is prepared, about an inch in width, and of variable length, according to each case. The extremities of this band are cut with scissors, and after having been rolled round the loose scrotum, its ends are made to adhere to each other. This little apparatus, which M. du Cantal invented for his own use, has been employed by M. Nélaton in several instances, with complete success. It permits the patient to stand, walk, and even exercise violently; its application is perfectly easy; it may therefore be looked upon as a most important palliative agent, which allows the patient to gain time; and even in the worst cases it will always be well to give it a trial, before exposing the subject to the chances of an operation, which, whatever may be the method adopted, is never entirely devoid of peril.

(c) CONCERNING THE UPPER EXTREMITY.

ART. 139.—*A New Principle of Diagnosis in Dislocation of the Shoulder-joint.*
By Dr. L. A. DUGAS, Professor of Surgery in the Medical College of Georgia, United States.

(*Southern Med. and Surg. Journal*, May, 1858.)

Dr. Dugas' new principle of diagnosis may be stated in the following words:—

If the fingers of the injured limb can be placed by the patient or by the surgeon upon the sound shoulder, while the elbow touches the thorax, *there can be no dislocation*; and if this cannot be done, *there must be a dislocation*. In other words, it is *physically impossible* to bring the elbow in contact with the sternum or front of the thorax if there be a dislocation; and the inability to do this is *proof positive* of the existence of dislocation, inasmuch as no other injury of the shoulder-joint can cause this inability.

In order to make these propositions apparent, Dr. Dugas gives drawings taken from the skeleton, showing the relative position of the bones in the natural state, and the several dislocations of the shoulder, and adds, that the evidence thus obtained in support of his principle, would be still stronger if the bones were invested with their normal coverings and attachments.

ART. 140.—*A Case of Dislocation of the Shoulder upwards and inwards.*
By Mr. T. HOLMES, Curator of St. George's Hospital Museum.

(*Proceedings of Royal Med. and Chir. Soc.*, June 22, 1858.)

CASE.—The patient was admitted into St. George's Hospital, under Mr. Tatum. The accident proved fatal in consequence of other very severe injuries.

On examination, the head of the humerus was found immediately under the skin, having passed through the fibres of the deltoid muscle, and having its cephalic vein on its inner side. It had fractured the coracoid process in its passage upwards, and was resting behind on the stump of this process and on the clavicle, with a small portion of the coraco-acromial ligament, which remained un torn. *Internal* to it (besides the fibres of the deltoid and the cephalic vein) was found the fractured extremity of the coracoid process, with the muscles attached to it. *External*, and somewhat posterior to it, was the acromion process, separated from it by some of the fibres of the deltoid. *Below*, and a little external to it, was the glenoid cavity, the tip of which lay on a horizontal plane quite below the level of the dislocated head of the bone. The long tendon of the biceps remained still attached to the scapula, and was therefore situated below and external to the head of the humerus. The bone, in passing out of the glenoid cavity, had injured this tendon slightly, so that some of its internal fibres had been broken away from the muscle. The sub-scapularis muscle was intact. The muscles attached to the greater tuberosity of the humerus were torn through, except that a portion of the teres minor remained. The capsular ligament had been lacerated at its upper and inner part, forming a large hole for the passage of the head of the humerus. The author referred to cases somewhat resembling this, related by M. Malgaigne, in his large work, and by M. Soden, in the 'Transactions' of this Society; and concluded with some remarks upon the diagnosis and mode of treatment of this accident.

ART. 141.—*Exsection of the Lower Four-fifths of the Radius.* By Dr. CARNOCHAN, Surgeon to the State Hospital, New York.

(*American Quarterly Journal of Med.*, July, 1858.)

CASE.—C. W., æt. 31, married, a native of Wales, and resident of the United States for the last twelve years, was attacked about five years since with inflammatory rheumatism, from which she suffered severely for about four months, although judiciously treated by her attending physician. Upon the subsidence of the rheumatic attack, her general health became tolerably good, but the left arm continued to be subject at times to severe pains, especially about the region of the forearm. In January, 1846, the left hand and arm became severely affected, swelling to twice the size of the sound limb, as high as the humero-scapular articulation. The disease continued unabated, accompanied with severe and excruciating pain, until July following, when signs of suppuration at the lower part of the forearm began to be manifested. The pain now became much less, and the tumefaction of the upper arm subsided; the febrile condition, also, became less; the patient, however, at this time, from the prolonged suffering she had undergone, and the severe treatment to which she had been subjected, presented a strumous appearance, with much debility and emaciation. The local disease had become concentrated upon the forearm, and an abscess, slow in its formation, finally pointed opposite the lower portion of the radius, on the posterior aspect of the arm, about three inches above the styloid process. Another similar point of fluctuation could be distinguished in front of the radius, nearly on the same level. At this stage of the malady the patient was brought to me for my advice, by Dr. Dougherty, of Brooklyn, on the 15th of March, 1857. The forearm was still generally much swollen, tense, hard, and red, as far as the humero-cubital articulation. A bistoury was passed into the abscess on the dorsal aspect of the arm, and a considerable quantity of pus immediately escaped; a probe passed through the wound struck upon denuded bone, and the nature of the case was plainly revealed. From the general character of the swelling at the lower part of the arm, it was not easy to determine at once whether the ulna was implicated or not; it was finally concluded, however, that the radius alone was diseased from ositic inflammation and its consequences, and that resection afforded the only chance of recovery. The nature of the disease was explained to the patient, and she readily assented to the operation.

The operation was performed on April 9th, 1857, with the assistance of Drs. Casseday, Dougherty, Cummings, Abrahams, Henry, and others, mostly in the

same manner as had been observed in the case of exsection of the entire radius, which has already been reported. The patient was seated upon a chair beside the operating table, and was easily put under the influence of chloroform. The arm, supported by assistants, was placed so that the ulnar border of the foramen rested firmly upon the edge of the table, in a state of semi-pronation. A longitudinal incision was made in the direction of the radius, on its external anterior border, commencing about two inches below the head of the bone, and extending downwards to a point opposite, and a little behind, the styloid process. Two terminal incisions were then made at the extremities of the first one, extending transversely backwards, about three-quarters of an inch. The bone was laid bare a short distance below its middle, and the dissection carried upwards to within three-quarters of an inch below the bicipital tuberosity, so as to expose the bone on its different aspects; at this part the radius was perfectly sound, and its section was easily effected by means of the chain-saw. The remaining steps of the operation consisted in separating the diseased portion from the soft parts, and in isolating the lower part of the radius from its attachments at the radio-carpal articulation, without injury to the arteries, nerves, or tendons. The humoral artery was compressed, during the dissection, by an assistant; the interosseous artery and a small branch only requiring the ligature. As soon as the oozing of blood had stopped, the tendons of the wrist were arranged in their relative positions, and the lips of the wound were drawn together. The proper dressings were then applied, and the forearm, in a state of pronation, was laid upon a padded splint, secured in that position by slips of a retentive bandage.

Six hours after the operation the patient was seen; she complained of much pain, extending to the axilla; an anodyne draught was ordered.

April 10th (the following day).—The patient stated that she had slept well during the night; pulse, 120; ordered an anodyne for the night.

May 14th.—Six weeks after the operation, the patient is entirely well, and the wound healed, with the exception of a small point at the middle of the arm.

At the beginning of this month (June, 1858), the patient presented herself to me, in order to express her thanks at the result of the operation, and to fulfil a promise, which I had obtained from her, of seeing me again at the expiration of a year. The radial aspect of the forearm presents the long cicatrix of the incision, and a depression corresponding to the portion of bone removed. The axis of the hand is somewhat changed, the hand being drawn towards the radial side of the arm; and, on the ulnar side of the wrist, the styloid process of the ulna presents a considerable projection. The functions of the hand and its sensibility are not impaired, and the patient informs me that she continues to perform her household duties nearly as well, and with as much facility, as before the operation.

Pathological condition of the bone.—The specimen exhibits the results of severe inflammatory action of the osseous tissue—expansion of the osseous tissue, ulceration, acicular projections, enlarged foramina with mammillated eminences, eburnation, and cloacae, leading to dead portions of bone in the interior. The surface preserves the general outline of the bone, but by the increase of bony matter it has been thrown into ridges and tuberosities, partly by the action of the muscles of the forearm.

(D) CONCERNING THE INFERIOR EXTREMITY.

ART. 142.—*Case in which the hip-joint was excised for Morbus Coxarius, and a summary of similar cases.* By Dr. R. A. KINLOCH, Surgeon to the Roper Hospital, &c.

(*Charleston Med. Journal and Review*, May, 1857.)

CASE.—John M.—, a native of Ireland, æt. 20, a laborer by occupation, was admitted into the Roper Hospital on the 2d of April, 1856. Two years previous he began to suffer from vague undefined pain about the lumbar region and the hip-joint of the right side. From time to time he had been compelled

to lie up for a short period, but never, until nine months ago, had he been sufficiently unwell to be obliged to give up his usual avocations. More lately his attention had been attracted by a decided swelling beginning to manifest itself upon the front of his thigh. This had gone on increasing for several weeks, until it had attained its present volume. There was also a disposition, lately, for the thigh to become flexed upon the pelvis, and now the limb could not be entirely straightened. Upon examination of the patient, who was emaciated and presented a marked scrofulous appearance, I found a large fluctuating swelling, evidently sub-fascial, occupying nearly the whole anterior part of the middle third of the right thigh. The thigh was slightly flexed upon the pelvis, and the knee and foot turned a little in; the limb, generally, was emaciated. There was likewise a small swelling over the nates, behind and lower than the trochanter; this, like the larger swelling, did not in any way disappear on pressure. The swelling upon the thigh was what had given the patient most anxiety, and induced him to come to the hospital. He only wanted something done for this, as he felt well enough, as yet, to go about, and for aught else would not have been disposed to lie up. The diagnosis was at once made out as *morbus coxarius*. The swellings were considered to be chronic abscesses, but at first I could not determine if they communicated with the joint. The disease of the joint did not seem to have progressed very far, as the patient walked readily, and the joint functioned very well; no grating could be discovered on manipulation, nor did extensive movement give much pain. I delayed opening the abscesses for several days, in order to watch a little the constitutional power of my patient, and further, too, to have my diagnosis more certain. I prescribed for him cod-liver oil \mathfrak{zss} , with wine $\mathfrak{z}ij$, three times a day, and an anodyne at night.

April 10th.—The abscess of the thigh having materially increased in size, and the patient complaining of the feeling of tension, I made a kind of valvular opening at the dependent part, on the outer side of the sartorius muscle, and evacuated a large quantity of thin pus.

22d.—I punctured the abscess over the nates, and, subsequently to this, both abscesses, having refilled, were again opened on several occasions.

May 4th.—Distinct fluctuation was discoverable higher up, behind the trochanter. A puncture was made here, and considerable pus flowed away, mixed, it appeared, with synovial fluid. Consequent upon this there supervened considerable irritative fever, with gastric disturbance and great restlessness. The oil was now discontinued, and *P. gum opii*, gr. j, with a glass of wine, given every three hours. The distressing symptoms were modified after a couple of days, and the opium was then only given at bedtime. The discharge from the last abscess was now very copious and offensive.

I had expressed a gloomy prognosis to some friends of the patient, and on this account I was applied to, on May 10th, to give him a discharge from the hospital, his friends preferring that he should die at home. At their earnest solicitation, a few days after, I consented to visit him privately. At the expiration of a few days I was much pleased to notice that a decided improvement had taken place under a free allowance of good wine, with nourishing diet, and opiates given when required. The discharge, though, continued profuse, and there were many evidences of extensive disease of the joint. Once or twice, when at the hospital, he heard me say something about dead bone and the persistence of the discharge. He now wanted to know if I could not in any way take out the dead bone, saying that he would submit to any operation that promised success. Eight or ten days elapsed, and finding that the discharge was as profuse as ever, moreover that ugly bed-sores were about appearing, I began to think that excision of the joint might offer a little chance. He seemed strong enough to stand an operation quickly performed, and this appeared the only alternative left. I then fairly stated to him my opinion, and told him how slight a chance the operation afforded; that it might hasten his end. He decided that the attempt should be made. I assumed the responsibility; but I determined that first I would explore the condition of the joint by making a free opening upon it through the cavity of a large abscess, just above the trochanter, and over the head of the femur. To open this abscess freely I con-

ceived to be proper practice, even though I did not intend to resect the joint. It would be but carrying out the improved plan of Mr. Gay for treating suppurating joints. If the capsule of the joint was found open, and the head of the bone caried, then I would proceed to resect. Previous to commencing my incision, I had decided, by the test of Nélaton, that the head of the femur *was still in the acetabulum*.

On the 31st of May, 1856, my patient having been brought under the influence of ether (I used ether then instead of chloroform for the first and last time, at the suggestion of a friend; the patient took fully a pound before he became affected), was turned slightly upon the left side, and held in that position by assistants. I then thrust the point of a small amputating knife a little in front of the base of the trochanter, and carrying it upward and outward, and then downward and backward, formed a semilunar incision encircling the trochanter, and consequently had a sort of semilunar flap with the convexity upward. The knife went easily through the walls of the abscess alluded to above, and exposed its entire cavity. The finger passed in, and to the bottom of the wound, discovered plainly considerable destruction of the capsule of the joint, and also the head of the bone, still in the acetabulum, but quite rough, and partially destroyed by caries; the brim of the acetabulum, too, could be felt considerably diseased. Under these circumstances, I conceived it best to proceed and resect the head of the femur. The point of the knife was accordingly passed across the portions of the capsule yet entire. My assistant then flexed, and adducted the thigh, and, the round ligament not holding, the head was thrown out of the cavity, and then forced as much as possible through the external wound. I next passed the chain-saw behind the head and neck, and quickly divided the bone above the trochanters. Proceeding to examine the acetabulum, I was shocked at the extent of the disease. The brim was rough and crumbling, and there was an extensive perforation of the floor. With the gouge forceps I took away some portion of the brim, but soon desisted, as I felt it impossible to take away anything like the whole of the diseased structures. The wound was brought together by a few sutures, the lower end only kept open by a little lint to facilitate the exit of the discharge, the patient removed to bed, and the limb extended and kept steady by pillows. Not reacting as well as I desired, I ordered brandy freely until my afternoon visit, also a full dose of opium. In the afternoon his condition seemed better; he had warmth of skin, and a fair pulse. The brandy was continued, according to the indication, during the night, but upon my morning visit I was sorry to discover a greater disposition to collapse.

From this time he refused to respond to the most active internal and external stimulation, but sank and died, not quite thirty hours after the operation. I was not able to examine the body after death.

Appended to this case is a table, in which we have a summary account of all cases of the same kind which have been recorded up to the present time. This account shows very clearly that this operation is much less fatal than that of amputation at the joint, and that a very serviceable limb may at times be saved by it.

Table of Cases in which the Hip-Joint has been resected for Disease.

No.	Operator.	Sex and age of patient.	Duration of disease.	Condition of patient, and state of parts at time of operation.	Date of operation, and extent of parts removed.	Progress and result of case.
1	Schmalz	...	...	Caries; head disconnected from shaft.	1816.	Recovered.
2	White	M. 14	3 years	Great exhaustion; head on dorsum of ilium; fistulae.	1818. Four inches of bone removed.	Fever slight; discharge little; health rapidly improved; well in a year; good use of limb.
3	Hewson	...	...	Caries.	1823. Resected just above small trochanter.	Perforation of acetabulum. Died in three months.
4	Schlitching	...	...	Caries, with abscess.	1829. ...	Well in six weeks; patient able to walk.
5	Kluge	...	...	Caries; head separated from shaft.	... ..	Died two months after operation.
6	Vogel	Child	...	Caries.	... ..	Recovered.
7	Textor	...	...	Disease of neck of bone and trochanter.	... ..	Sloughs formed on sacrum; death on fifty-third day.
8	Textor	...	...	Caries; head out of acetabulum.	... ..	Gangrene of wound, and death on fourth day.
9	Heim	...	...	...	1829.	Recovered.
10	Brodie	...	...	Caries; head in acetabulum.	1836.	Died in a few days.
11	Textor	...	...	...	1845. Removed all above lesser trochanter.	Complete recovery.
12	Fergusson	M. 14	Some months	Head on dorsum; large sinus.	1845. Four inches taken away.	Shock slight; wound healed well; health rapidly improved; limb quite useful.
13	Fergusson	M. 8	Some time	Emaciation and hectic; head dislocated; abscess over ilium; sinuses.	1847. Head and neck with edges of acetabulum removed.	Health improved; wound never entirely healed; died, eight years after, of liver disease.
14	Roux	M. 15	Long standing	Emaciation and hectic; dislocation; no abscess or fistulae.	1847. Head and part of neck removed.	Secondary hemorrhage; abscess between the glutei; death on seventh day; dis-ease of acetabulum.
15	Simon	Child	2 years	Head dislocated upon acetabulum; abscesses and sinuses.	1848. Head and portions of acetabulum removed.	Died four days after operation.
16	French	F. 10	Some time	Head carious, and upon dorsum of ilium.	1848. Head and trochanter taken away; acetabulum healthy.	Recovered.
17	Fergusson	...	...	...	... ..	Recovered perfectly.

18 Walton	M. 16 2 years	Caries; severe pain; sinuses with discharge; some disease of acetabulum.	1848. Removed four inches of femur, and portions of acetabulum.	Pain ceased; health rapidly improved; wound healed well.
19 Walton	...	...	1848. ...	Unsuccessful.
20 Smith	M. 33 1 1/2 year	Head dislocated; caries; sinuses.	1848. Removed three inches and rim of acetabulum.	Symptoms improved for four months, but in two weeks more he died; Bright's disease of kidney, and caried vertebra found.
21 Ferguson	F. 13 3 years	Caries; head dislocated.	1849. Removed head and trochanter major.	Recovered perfectly.
22 Morris	M. 18 6 years	Neck nearly destroyed; head not dislocated.	1849. Head and neck removed.	Recovered, with motion of thigh, and could walk a short distance.
23 Cotton	F. 12 ...	Ulcer upon hip; caries; sinuses; emaciation.	1849. Four and a half inches removed.	Slight fever; symptoms soon improved; ulcers healed; health gaining.
24 Buchanan	M. 41 2 years	Great suffering; grating in joint; profuse discharge.	1850. Resected below trochanter; head and edge of cavity carious.	Recovering rapidly, but died of dysentery three months after; parts found healthy and in advanced stage of repair.
25 Skye	F. 13 3 years	Emaciated and nearly worn out; femur dislocated on dorsum; large ulceration on trochanter; sinuses discharging freely.	1850. Head found absorbed; portion of neck and the trochanter removed.	Result not mentioned.
26 Sayre	...	Caries of head and neck.	1851. Head removed.	Wound healed, but abscesses formed; did not progress favorably.
27 Jones	F. 32 18 years	Powers of life feeble; head carious, and on dorsum; sinuses.	1851. Head removed.	Recovered: walks some, with a high heel and a stick.
28 Stanley	M. 18 Several years	Feeble and emaciated; head dislocated; fistulae discharging freely.	1852. Large abscess found under gluteal.	Symptoms improved rapidly; wound not healed entirely, but health robust eighteen months after operation.
29 Hawkins	F. 10 4 years	Head carious; emaciation and hectic.	1852. Removed one inch below the trochanter, also edges of acetabulum.	Died on third day; found large perforation of acetabulum.
30 Bigelow	M. 10 ...	Caries and dislocation.	1852. Bone separated while sawing.	Death on the twelfth day.
31 Erichsen	M. 14 Several years	Greatly reduced; bone dislocated.	1853. Neck and great trochanter removed.	Rapid improvement; suppuration profuse; died some months after.
32 Parkman	M. 12 6 months	Hectic; abscess; caries.	1853. Head and part of neck removed.	Three months after, progress very satisfactory.

Table of Cases in which the Hip-Joint has been resected for Disease—Continued.

Operator.	Sex and age of patient.	Duration of disease.	Condition of patient, and state of parts at time of operation.	Date of operation, and extent of parts removed.	Progress and result of case.
33 Fergusson	F. 12	1 year	Head dislocated; abscess.	1854. Removed head and large trochanter.	Improvement marked.
34 Erichsen	M. 8	Long standing	Emaciation; hectic; caries.	1854. Removed head and edges of acetabulum.	Recovered.
35 Sayre	F. 9	18 mo's	Caries; dislocation on dorsum; abscesses; great prostration; sweats, &c.	1854. Removed head and neck; gouged away portion of brim of acetabulum.	Recovered with limb only quarter of an inch short; flexion, extension, and rotation preserved; general health perfect.
36 Shaw	M. 17	7 or 8 months	Dislocation and protrusion of head through fistulous opening.	1856. Head removed.	Recovery, with a very useful limb; can walk three miles at a time.
37 Shaw	F. 14	2 years	Dislocation, fistule; sinuses.	1856. Head and neck removed.	Excellent condition thirteen weeks after the operation.
38 Hancock	M. 14	5 years	Caries, with abscess discharging and connecting with interior of the pelvis. Probe passes from a fistulous opening in the groin into the pelvis, and then out through the acetabulum; great emaciation; night sweats and cough, with expectoration streaked with blood.	1856. Resected below great trochanter; also removed the whole floor of the acetabulum.	Patient hopping about on crutches sixteen weeks after the operation, with robust health.
39 Erichsen	M.	...	...	1857. Head removed.	One month after the operation, the patient is doing well.
40 DeMorgan	M. 17	...	Caries of head; dislocation.	1857. Head and neck removed.	Little constitutional disturbance; patient doing well.

NOTE.—After the materials for the above table had been gathered, I for the first time saw the article of Dr. Sayre, of New York, in the 14th vol. of the *New York Journal of Medicine*. I was pleased with his table, and so made my own conform to his arrangement in part. One or two cases recorded by him I have not been able to find reports of anywhere else, so these must rest upon his authority. I have no doubt of their correctness, and it is likely that I have overlooked them in my examination of the various periodicals in my possession. I present in my list several cases omitted by Dr. Sayre; and, writing two years after him, have, of course, recorded many which have recently occurred.—R. A. K.

ART. 143.—*Case of Hydatids in the Tibia.*
By Mr. COULSON, Surgeon to St. Mary's Hospital.
(*Proceedings of Med. and Chir. Soc.*, May 25, 1858.)

CASE.—The patient, a female, *æt.* 25, was admitted into St. Mary's Hospital on the 20th of October, 1857, with a swelling of the size of an orange in the front of the right leg, just below the tuberosity of the tibia. In the centre of the swelling there was a small ulcer, and the surrounding integuments were red and swollen. The discharge, which was not considerable, was found to contain acephalocysts. It appeared from her history that eight years previously the patient had received a kick on the front of the right tibia, a little below the insertion of the ligamentum patellæ, which injury was soon followed by a swelling, which increased in a gradual and steady manner until it attained the size of a hen's egg. Slight pain attended the growth, but no great inconvenience until four years ago, when the pain becoming severe the tumor was frequently blistered, with relief; but the swelling remained in much the same condition until the beginning of August last, at which time it first gave way spontaneously, and matter containing acephalocysts was discharged. The anterior wall of the tumor, containing a large hydatid about to escape, was removed with the saw and bone forceps, and a cavity exposed, which extended upwards within half an inch of the knee-joint and two inches or more down the shaft, and from which a considerable number of hydatids were removed. The whole of the cavity was lined by a white glistening membrane. After removal of all the hydatids to be found, Mr. Coulson rubbed the lining membrane of the cavity freely with solid nitrate of silver, and filled it with cotton wool. The woman was discharged on the 5th of February, with the wound nearly healed.

ART. 144.—*An improved method of operating in Excision of the Os Calcis.*
By Dr. MORROGH.

(*Med. and Surg. Rep.*, June, 1857; and *North American Medico-Chir. Rev.*, May, 1858.)

This operation was resorted to in a case of destructive inflammation of the os calcis and neighboring soft parts, seriously compromising the general health, in a patient aged twelve years, who, nine months previously, had had his foot slightly squeezed between two railroad cars.

"The boy was placed on his left side on a table, and rendered insensible with chloroform.

"A vertical incision was made over the posterior extremity of the os calcis, extending from the superior to the inferior surface. This was continued along the inferior surface of the bone to its articulation with the cuboid, taking care to keep outside of the external plantar artery.

"The incision was then carried upwards to a short distance above the superior surface of the bone, without wounding the peroneal tendons. This incision described a square flap on the outside of the foot, which was dissected up, and the tendo-Achillis separated close to its attachment.

"A strong narrow scalpel was then introduced under the peroneal tendons, and made to separate the calcaneo-cuboid articulation, without severing the tendons or the artery beneath.

"The knife was then introduced between the upper surface of the bone and the astragalus, made to cut the interosseous ligament, and gradually separate the articular surfaces. The calcaneum was then rotated, so as to bring its upper surface outward, till the internal made its appearance, when the soft structures were carefully separated, principally by the handle of the scalpel, thus completing the operation.

"After this mode of proceeding, we had the satisfaction of seeing the posterior tibial and plantar arteries pulsating in perfect integrity, while the tendons of the peroneal muscles, as well as those of the flexor longus pollicis, flexor communis digitorum, and tibialis posticus, were uninjured. No ligatures were required, the flap was approximated. A piece of flat sponge applied over the

wound, and a gutta-percha splint previously moulded over the instep, so as to keep the foot extended. The operation was followed by a total cessation of pain and febrile action.

"The boy improved rapidly in health. The wound healed mostly by adhesion, the rest by granulation. The cavity partly filled by what I suppose to be fibro-cellular tissue, and in two months after the operation the boy could run swiftly.

"At the present time he wears a small pad in the shoe under his heel, and does not experience the least inconvenience from the deficiency of the bone."

ART. 145.—*Onychia treated by ointment of Perchloride of Iron.*

By DR. ALCANTARA.

(*Gaz. Méd. de l'Algérie*; and *Amer. Med. Monthly*, May, 1858.)

CASE.—Miss C—, æt. 19, suffered for a long time from a pain in the left foot; severe enough to interfere with walking. A recent blow had aggravated it, so as to make walking and standing entirely impossible.

The great toe of the left foot is considerably swollen; its extremity presents a very large fleshy excrescence, like a kind of pad, which covers the nail for more than half its extent. The surface of this fungus is destitute of epidermis, and a purulent exudation appears between it and the nail. The pain becomes intolerable as soon as the patient puts her foot to the ground.

The proposed extirpation of the nail frightening the patient too much, Dr. Alcantara ordered an ointment of equal parts of perchloride of iron and lard, directing it to be used in the following manner: after a local bath, to pass a bit of lint spread with this ointment between the nail and the fleshy excrescence, and also to cover with the ointment the whole surface of the toe which was stripped of its epidermis; this dressing was renewed twice a day. At the end of four days the dried and mummified excrescence came off; soon after the wound became healthy, the flesh was at its proper tint, and everything was natural. The cure was complete on the eighteenth day and has since been permanent.

PART III.

MIDWIFERY AND DISEASES OF WOMEN AND CHILDREN.

ART. 146.—*Observations on the duration of Pregnancy.* By Dr. ELSÄSSER.

(*Henke's Zeitschrift*, Bd. lxxiii., 1857; and *Med. Times and Gazette*, June 12, 1858.)

As a contribution to this subject, Dr. Elsässer communicates the particulars of 260 cases of normal pregnancy with mature children, entered in the journals of the Stuttgart Lying-in Hospital, and to which certainty may be attached:—

1. *Reckoning from the day of conception*, the duration was—

Exactly 280 days in	23
Less than " "	166
More than " "	71

160

In nearly one-half (126) the duration was between 271 and 280 days, and in 62 other cases between 281 and 290 days.

Separating the cases into primiparæ and pluriparæ, we find that there were 149 primiparæ, and in these the duration was—

Exactly 280 days in	14
Less than " "	96
More than " "	39

149

In 111 multiparæ the duration was—

Exactly 280 days in	9
Less than " "	70
More than " "	32

111

So that among the primiparæ there have been greater abnormalities in plus and minus, and the mean normal period has been seldomer met with than in multiparæ. The extremes of the duration of pregnancy (232 days, and from 301 to 306 days) occurred in primiparæ.

2. *Sex of the children.*—The sex of the child seems to have exerted little or no influence upon the duration of the pregnancy. There were born 130 children of either sex; but as among the primiparæ a great preponderance of female (85) over male (64), happened to occur, the extremes of duration were met with in them.

3. *Reckoning from the commencement of the last menstruation.*—The indication of this is often wanting, or too indeterminate to be relied upon; and among these cases it could only be depended upon in 175. Of these 13 menstruated once after conception, and the reckoning in them was made from the penultimate menstruation. The duration was found to be—

Exactly 280 days in	12
Less than " "	43
More than " "	120

175

Of the last number the duration was from 281 to 290 days in 60, 291 to 300 days in 49, and 301 to 318 days in 11.

If 280 days be accepted as the normal duration, the reckoning from the date of conception more nearly approaches it (in 8.8 per cent.) than that of the last menstruation (6.8 per cent.). This so-called normal duration is, however, that which is seldomest met with: for reckoning from the period of conception 91.1 per cent., and from the commencement of the last menstruation, 93 per cent. of all the cases either fall short of or exceed this term. The same deduction may be drawn from the observations of others. Thus, Merriman found only 9 of 114 cases in which labor came on at the 280th day. Reid enumerates only 18 of 40 women in whom, conception following a single coitus, labor came on between the 274th and 284th day; and Duncan found, reckoning from the period of conception, 275 days, and from the last day of menstruation 278 days was the mean period.

4. *The interval between the commencement of the last menstruation and conception* was found to be—

5 days in 13 cases				
From	6 to 10	"	47	"
"	11 " 15	"	38	"
"	16 " 20	"	18	"
"	21 " 25	"	9	"
"	26 " 30	"	14	"
Above	30	"	8	"

These statements are, however, to be taken with the greatest caution, for it is seldom that this class of women observe exactly the last day of menstruation.

5. *The weight of the child in relation to the duration of pregnancy.*—Dr. Elsässer furnishes a table in which the mean weights of the children are placed side by side with the duration of the pregnancies of their mothers; but we need not transcribe this, inasmuch as it only proves that there is no relation prevailing between the two facts.

ART. 147.—*How many children can a woman bear?* By Dr. SZUKITS.

(*Zeitschr. der Gesellsch. der Aertze zu Wien*, July and Aug., 1857.)

Dr. Szukits says this question has not yet been satisfactorily answered. He himself has observed two females, each of whom had borne 24 children. Oslander ('*Handb. d. Entbindungs Kunst*, 1 Theil, 1 Abth., S. 319) mentions one woman who, during her married life, bore 42 children, and another who had 53. Burdach ('*Die Physiol. als Erfahrungswissenschaft*, 1 Bd., 1826, S. 410) relates that the wife of a countryman in the Moscow district had given birth to 69 children at 27 confinements; four times 4 at one birth, seven times 3, sixteen times twins. In the year 1809, the Vienna newspapers contained the following announcement: Maria Anna Helm, the wife of a poor linen-weaver in Neulerchenfeld, twenty years married, bore at 11 confinements 32 children; 28 living, and 4 dead; 26 were males, and 6 females; all were begotten by one man, and nursed by herself. She had at her last confinement 3 children; 1 living and 2 dead. Her husband was a twin, she herself one of four. Her mother had produced 38 children, and died during a confinement with twins (Oslander, 516). Six children seem to be the largest number ever produced at one birth. A perfectly trustworthy instance of this is the following. The '*Schwäb. Mercur*,' No. 8, S. 22, 1806, contains the following notice: Ohlau in Silesia, 11 Dec., 1805. The wife of a chimney-sweep here, named "Döpfer," was yesterday confined of six children; all were boys, and dead. This woman, who has been twice married, has already given birth to 44 children. During her first marriage, which lasted twenty-two years, she bore 27 boys and 3 girls. In her second marriage, which has lasted but three years, she has borne 14 children—3 at the first, 5 at the second, and now 6 at third confinement (Oslander, 320).

ART. 148.—*Statistics of Operative Midwifery in Private Practice.*

By Dr. MEISSNER.

(Monatsch. f. Geburts-Künde, Band ix., 1858; and Medical Times and Gazette, May 29, 1858.)

This is a report by the great Leipsic veteran, on the results of his thirty-five years' midwifery practice, as far as operative midwifery is concerned. He observes, that a review of private midwifery practice must be taken from quite a different point of view to that of a public institution; for while, in the latter, the bulk of the cases are examples of natural labor, the private practitioner is only consulted, as a general rule, when the case has become pathological. [These observations are, of course, only applicable to the mischievous Continental practice of leaving cases in private practice to the almost exclusive care of midwives, the physician only being called in when the case has assumed a serious aspect, and, of course, frequently too late.] Moreover, in the Lying-in Hospital, the physician treats his cases in a suitable locality, with all he wants at hand; while, in private, the practitioner is called miles away to neglected cases, having insufficient appliances, and is forced to treat his cases under the most disadvantageous circumstances.

Dr. Meissner's observations relate to 3811 women, who, he says, gave birth to 3980 children, as 136 were twin, and two triplet births. But there is here obviously some error in the numbers, as these do not correspond with each other. Of the 136 twin-births, in 54 there were 2 boys, in 35, 2 girls, and in 47 children of both sexes. Of the triplets, in one case there were 2 boys and 1 girl, and in the other 3 girls. These 3811 labors called for operative interference in 3025 instances, dynamic aid being required in 924 of these to effect change of position. There were 1863 forceps operations (!), this instrument being required in five other instances for the removal of separated fungoid or polypous tumors. Turning was performed 351 times, extraction 247 times, perforation 32 times, the induction of premature labor 20 times, the Cæsarean operation 6 times, *accouchement forcé* 55 times, polypus operations 6 times, placenta separation or deliveries 447 times. 2086 boys and 1684 girls were born at full time, while there were 265 premature births or abortions, and 24 moles and polypi. 399 children were born dead, and of those living 36 died within fourteen days. Twenty-five mothers died either before or during labor, or within sixteen days after it.

Turning.—Although this, when performed at the proper time, is usually an easy operation, executed within a few minutes, yet of the author's 351 cases in only 222 did it prove completely successful for both mother and child. In 104 cases the child was born dead, in 2 cases the mother died from the delivery, and in 2 after this had taken place. This issue is chiefly to be attributed to the ignorance of midwives in the detection of cross presentations and the delay that elapsed before aid was obtained. Dr. Meissner prefers turning by one foot, unless there is some indication for hastening the delivery. This rule is of especial importance when multiple births are expected, so as to avoid getting hold of two feet of separate children. In one of the author's cases of triplets all the children presented cross-wise, and six lower extremities were felt. All the children were safely delivered by operating upon one foot at a time. The one-foot delivery also gives the child the best chance of being born alive. *Cephalic* version is preferred by some practitioners, as giving the child the best chance; but it can only be tried when hastening the delivery is not an object. The author resorted to it successfully in 6 cases. In 4 of the 351 cases turning was performed by *external manipulation*, and in 3 by *spontaneous* version, the buttocks being forced by the presenting shoulder into the pelvis, and all the children being born dead.

Forceps operations.—Of 1863 cases, in 1750 the head was the presenting part; and in 113 the forceps were used for its delivery in other presentations. Of the 1754 children delivered, 90 were born dead, *i. e.*, nearly 12.19. This, in an operation which, carefully performed, can hardly be considered dangerous to life, is a high proportion; but the child had, in fact, not unfrequently died during pregnancy, and was in advanced putrefaction on delivery. In 10 in-

stances the child was hydrocephalic or dropsical; in 3 the mother was already dead; there were 5 cases of spina bifida; 7 deaths took place from prolapsed funis, and 3 from the arm and head being tightly wedged in together. In 4 instances the mother had suffered from repeated convulsive paroxysms. In other cases the application of the forceps had been repeatedly attempted by preceding practitioners, or the passage was narrowed by the presence of tumors. Dr. Meissner remarks, by the way, that the separation of the epidermis is not always a certain sign of the death and putrefaction of the child, as it may be produced by an acrid condition of the *liq. amnii*.

Extraction.—This was performed in 247 cases, and became necessary when, in breech, knee, or foot presentation, the child's life was threatened by cessation of pain, faulty position, or prolapsus of funis. Only 145 of the children were born living; but then 13 had died through pressure on the funis, before the author's arrival; 18 were in a state of putrefaction, 10 were already born except the head, 8 were immature, and in 5 others there was hydrocephalus or other form of dropsy. In 42 instances extraction had to be performed on account of cessation of pain after turning.

Perforation.—In his thirty-six years' practice, this operation has only been performed by the author thirty-two times, and he had attended 3299 labors before he had his first case. He has always followed the maxim laid down by the chief German practitioners, of never proceeding to the operation until assured of the child's death; and it has several times happened to him to see living children born in cases which have been left for days together to the powers of nature, and which in previous labors had been delivered by perforation.

Premature labor.—So much has the performance of the operation for premature labor limited that of perforation, that while to the year '42 he had had to resort to perforation in twenty-eight instances, he has during the subsequent fourteen years only performed it four times. He has never induced premature labor prior to the thirty-sixth week, and has never found this too late, the bones continuing thus long sufficiently soft and yielding to accommodate themselves to the narrowed pelvis. When the reckoning is uncertain, he performs the operation thirty-six weeks after the last menstrual period.

Forced delivery (accouchement forcé).—By this term, the author understands the whole series of operations (as artificial dilatation of the os uteri, bursting the membranes, turning, extraction, or removal of placenta) which may be required for delivery when the further continuance of pregnancy is dangerous to mother and child. It is especially called for in certain cases of eclampsia, placenta prævia, and obstinate vomiting. He enumerates under this head two instances of opening the adherent os uteri by means of the knife, and eight cases of its forcible dilatation. This last procedure was resorted to because, after the labor had continued three or four days, in place of dilatation of the os uteri, general debility and delirium set in. The author has resorted to it fifty-five times during thirty-six years. In thirty-three of these cases both mother and children did well, although, as the dilatation was usually undertaken for placenta prævia, most of the latter were born some weeks too soon. As the majority of cases (31) were examples of placenta prævia, in which hemorrhage had continued long before the patients were seen by the author, it is not surprising that ten of the mothers died; but another statement of the author, that even when he arrived at his patients he plugged the vagina, and awaited pains before proceeding to deliver, is somewhat extraordinary.

Cæsarean operation.—Of the six examples of this that have fallen to the author's lot, five were performed on mothers being already dead, the children being saved in none. In the case of operation upon the living subject, both mother and child lived.

Placenta removals.—The number of these (447) must seem very large; but it is to be remarked that, perhaps not one-tenth of these cases were examples of abnormal adhesion requiring separation, the placenta being frequently detained from other causes, preventing the success of the ordinary manipulations, as "stricture of the uterus," spasmodic contraction of the uterus from too early interference, &c.

General results.—Of the mothers, 41 were lost; 25 during, and 16 after de-

livery. Of the former 25, 11 were already lifeless when seen; and of the 14 others, 1 died from rupture of the omentum with internal hemorrhage, 10 from placenta prævia necessitating forced delivery, 2 from nervous shock after favorable labor, and 1 from hemorrhage. Of the 16 mothers who died after delivery, 1 died from cancer of the stomach, 1 from pneumonia, 3 after repeated attacks of eclampsia, 1 from putrescence of the uterus, 1 from typhus following the birth of a putrid premature child, 4 from puerperal fever following operative procedures, 1 from "paralysis of the lungs," 3 from the consequences of loss of blood, and 8 after several hours' operative attempts by a country practitioner.

Of the children 399 were born dead, as already stated, under the various operations. Besides these, 36 died within the first fourteen days after birth; viz. 4 from debility from too early birth, 6 from atelectasis pulmonum, 2 from trismus, 1 from fissure of the cranium after a forceps operation, 1 from chronic hydrocephalus, and 2 from want of breast-milk.

After remarking upon the remarkable sequences met with in practice of unusual pathological occurrences, and of the operations required for their relief, the author observes, that, as a general rule, forceps operations are found to be most frequent in cold, changeable weather, which induces rheumatic affections of the uterus, not only rendering the dilatation of the os very painful, but delaying its accomplishment for days. This condition may be often prevented by clothing warmly the lower part of the person; and when it is present it should be treated by Dover's powder. The standing too much over the fire, also, may, by over-heating the abdomen, lead to a plethoric condition of the anterior wall of the uterus, which may not be without its influence in inducing morbid adhesion of the placenta. Such an occurrence is best prevented by abstaining from this practice, and bathing the abdomen with cold water. When adhesion has taken place repeatedly at the same place, in consequence of an indurated condition of a portion of the uterine wall, we should, after the termination of the puerperal condition, endeavor to induce absorption by mild mercurial or iodine frictions, tepid baths, together with hemlock and mallow injections. If these do not succeed, the baths at *Krankenheil*, near *Tolz*, in *Bavaria*, which have been found so useful in fibroid and hypertrophy of the uterus, should be tried.

ART. 149.—On the prevention of laceration of the Perinæum.

By Dr. MATTEI.

(*Vierteljahrssch. für Prak. Heilk.*, 1858; and *Med.-Chir. Review*, Oct., 1858.)

Dr. Mattei gives the following views on the means of preventing laceration of the perinæum: It is especially necessary that the head pass the vulva in a favorable direction. This can only happen when it passes with the necessary degree of flexion. Whilst the occiput passes under the pubic arch, the face has not yet quitted the pelvic outlet; first, when the upper part of the neck comes under the pubic arch, can the extension of the head (or the separation of the chin from the breast) begin. If the distension of the perinæum begins too early, the head must pass the vulva with unfavorable diameters; namely, with the great oblique, or great or straight diagonal diameters. Such a passage easily causes laceration. Hence it is the task of the physician to prevent a premature distension by the head. This he effects by placing two fingers between the labia, or, in some cases, between the pubic arch and occiput, so as to bring the head downwards and outwards, at the same time laying the other hand on the hinder part of the perinæum, upon which the face is lying, and pushes this upwards. This manœuvre is to be executed during the pains, which will thus protrude the head forwards in the requisite arc. A very simple means of expediting the birth of the head consists in compressing firmly the distended perineum with the whole hand. This resembles the squeezing out of the kernel from a cherry. On the passage of the shoulders care must also be taken lest the two shoulders pass together.

ART. 150.—*History of a Forceps Case.*

By Dr. ROBERT LEE, Obstetric Physician to St. George's Hospital.

(Medical Times and Gazette, Sept. 18, 1858.)

CASE.—At 10½ P. M. on Monday, August 23d, 1858, I was requested to see a lady, æt. 40, who was stated to have been in labor since the Saturday morning. "The head on the perinæum; the pains have gone off; she looks well, but the pulse is 120, and there has been no progress during twelve hours. When the membranes gave way not precisely known." At 11 P. M., pulse rapid; no pain whatever. The head pressing upon the perinæum—the external parts partially dilated. An ear under the symphysis pubis readily felt. There was a peculiar fetor in the discharge from the vagina. Auscultation was employed, but the sound of the fetal heart could not be heard. Had I been absolutely certain that the child was dead, I would not have applied the forceps, although it was a favorable case for delivery with the forceps. The movements of the child had been but little felt by the mother during the day. I applied the blades of the forceps readily, and got the head nearly in the world, when the perinæum appearing to be in great danger, I took off the blades, and by slight pressure with the fingers on the sides of the head in place of the blades, I easily extracted it. A bloody fluid escaped from the mouth and nose. The skin of the abdomen was peeling off. It must have been dead at least two days. The labor had commenced at 4 A. M. on the Saturday morning. It went on all the Saturday, Sunday, and Monday, till Monday night at 11 P. M. It was the first child.

Two ounces of chloroform had been given during the Saturday and Sunday. Once the patient was nearly insensible. On inquiry why this had been done, the medical attendant stated that he did not approve of it, but the patient insisted upon having it. She informed me that a lady of her acquaintance was attended by "a chloroform doctor," and that she had, in consequence of this, contrary to the advice of her medical attendant, insisted upon taking it. It appeared almost certain that if he had not yielded to the wishes of his patient, she would have placed herself in other hands.

I observed to Dr. —, after the delivery with the forceps of a child that had been dead two days, that it would be most important in cases of protracted labor, if any means could be discovered by which the life or death of the child could be determined with absolute certainty. The method of treatment in many cases would be regulated by this. Had I been certain in this case that the child was dead, I would not have delivered with the forceps, but by craniotomy.

Since the occurrence of this case I have applied the stethoscope over the anterior fontanelle immediately after birth, but the pulsation of the arteries of the brain was not heard. I tried the instrument recently invented by Dr. Alison, but this was equally unsuccessful.

The 12th chapter of M. Mauriceau's second book is entitled, "*Les signes qui font connoître que l'enfant est vivant ou mort dans la matrice.*" He was fully aware of the importance of the subject, and among other expedients recommended by him to ascertain the fact with certainty, was introducing the hand into the uterus to feel whether there was any pulsation in the arteries of the umbilical cord, or in the artery at the wrist. "*Et si mettant la main dans la matrice, on trouve l'enfant froid,*" says M. Mauriceau.

"A sense of coldness in the abdomen," is one of the symptoms enumerated by Dr. Merriman as among those which are useful "in proving that the fœtus has been dead in utero for several days or even weeks." Among the "signs of a dead child," the eleventh mentioned by Smellie is, "a coldness felt in the abdomen."

I felt curious to know whether the temperature of a dead child during labor was different from that of a living child, for during labor the fact could readily be ascertained. I soon found that the temperature of a living child immediately after birth was 98°. In a case of twins, the feet presented. I measured the temperature of the feet and thighs before the nates were expelled, and the

heat was 98°. After the expulsion of the breech, the thermometer was introduced into the anus, and the heat was 98°. After the birth of the child I found the temperature of the axilla, mouth, and head the same. I ruptured the second bag of membranes, and when the head was expelled, but not the body, I put the thermometer in the mouth, and it was 100°. The heat of the mother's mouth and vagina was 98°.

I have not had an opportunity of ascertaining what the temperature of a dead child is, either before, during, or after delivery.

ART. 151.—*History of a case of Craniotomy.*

By Dr. ROBERT LEE, Obstetric Physician to St. George's Hospital,

(*Medical Times and Gazette*, Oct. 20, 1858.)

CASE.—On Sunday morning, at half-past one, of the 26th September, 1858, I was called to an obstetric case. The patient was 31 years of age; first child. The practitioner had first seen her at half-past six o'clock on the Saturday morning. Labor, it was stated, had been progressing slowly ever since. "All to-day fecal matter has been passing per vaginam. She appears to be getting exhausted. Pulse 120; tongue furred. It appears to be a case where there is nothing left for us but perforation."

The husband, who came with a letter from the medical attendant, was in a state of great alarm, and said, in driving home, "Will it be necessary for you to give my wife chloroform?" My answer was, "Certainly not; I have never seen chloroform do the slightest good in any case of midwifery, and in some the greatest mischief." On reaching the house, I found two medical practitioners in attendance. The circumstances which had excited the greatest anxiety was, "the fecal matter passing per vaginam." They assured me it was not the meconium, but the contents of the mother's bowels which were escaping. I inquired if there was any symptoms of rupture of the vagina, but there had been no vomiting, and the head was in the pelvis, and actually resting upon the perineum. One of the medical attendants spoke of the forceps, but did not actually propose to use the instrument. I inquired if the forceps had ever been applied by him to the head of a child positively known to be dead, which was the fact here. To this question no reply was given; but it was my impression he had never done this.

I found the patient a good deal exhausted, and the pulse rapid. The pain had entirely ceased. The discharge from the vagina extremely fetid. The head was so flaccid, and the bones so much pressed over one another, that there could be no doubt the child had been dead for a considerable period. I examined the posterior wall of the vagina; but there was no rent, and no feculent matter was passing per vaginam. I had not a thermometer with me to determine exactly the temperature of the head; but it did not feel colder than the vagina. No chloroform was given before proceeding to perforate and extract the head, which was speedily done. There was no thermometer in the house; but I applied my hand to the body of the child immediately after its escape, and there was no sensible difference in the temperature between this and a living child. Both practitioners did the same, and we all came to the conclusion that the temperature must have been about the same as that of the mother. The bandage was applied, but the placenta did not come away for about half an hour; and as it adhered was removed by the medical attendant very carefully and successfully; slight hemorrhage followed, but soon ceased.

The forceps would have been employed in this case, had the child been certainly known to be alive, or if its death had remained doubtful.

It might now, I think, be considered as an aphorism in midwifery—that the forceps is not applicable to dead children, nor in cases where the os uteri is not fully dilated, and the head has not descended into the cavity of the pelvis and can be felt. But I had forgotten, the aphorisms in midwifery have all of late been turned topsy turvy.

ART. 152.—*On the comparative use of Ergot and Forceps in Labor.*

By Dr. FORDYCE BARKER.

(Amer. Med. Monthly, July, 1858.)

The more enlarged our clinical experience, and the more accurate our observation, the more rarely, in Dr. Barker's opinion, shall we have recourse to ergot before delivery. Delay in labor, moreover, is held to be more dangerous than promptness in the use of the forceps. Ergot is said to be safe only in those cases where the presentation is natural, the pelvis well formed, the os uteri well dilated, the vagina and vulva lax and moist, and, in short, everything prepared for delivery, nothing being wanting but efficient action of the uterus. The conclusion is, that the dangers are many and great, and the advantages few. On the other hand, the dangers resulting from the use of the forceps are set down as overrated, and the dangers of *delay* as greatly underrated. The plain, practical question for the lying-in-room, Dr. Barker thinks, is—*which is safest for mother and child, the use of instruments, or further delay?* And to this question the answer is to be found in the accompanying quotation:—

"Professor Simpson has shown that the maternal mortality attendant upon parturition increases in ratio progressive with the increased duration of the labor. He has made out the following table, showing the proportion of 138 natural deaths in relation to the duration of labor in 15,850 cases of delivery recorded by Dr. Collins:—

Duration of labor.	No. of deliveries.	No. of deaths.	Proportion of deaths.
"Within 1 hour	3537	11	1 in 322
From 2 to 3 hours	6000	26	1 in 231
From 4 to 6 hours	3875	29	1 in 134
From 7 to 12 hours.	1672	21	1 in 80
From 13 to 24 hours	502	19	1 in 26
From 25 to 36 hours	134	8	1 in 17
Above 36 hours	130	24	1 in 6

"So also the infantile mortality attendant upon parturition increases in ratio progressive with the increased duration of the labor, as is shown in the following table of the proportions of stillbirths, in reference to the duration of labor in 15,850 cases of delivery:—

Duration of labor.	No. of deliveries.	No. of stillborn.	Proportion.
"Within 2 hours	7050	347	1 in 23
From 3 to 6 hours	6362	346	1 in 18
From 7 to 12 hours	1672	151	1 in 11
From 13 to 24 hours	502	88	1 in 6
From 25 to 36 hours	134	42	1 in 3
Above 36 hours	130	71	1 in 2

"It will be thus seen that the dangers of delay, both to mother and child, become a question of the gravest importance. Among our systematic authors, Burns has more strongly, and I think more truly, pointed out these dangers than any other of our English writers. He says the continued pressure of the head on the soft parts is productive of further diminution of the capacity of the pelvis, for inflammation is excited, and at the time the return of the blood by the veins is obstructed, and of serum by the lymphatics. This impairs the power of the soft parts, and renders the inflammation of the low kind, so that even when delivery is accomplished sloughing succeeds, whereby very dreadful or loathsome effects are produced, if these, indeed, be not prevented by the death of the patient, in consequence of a similar low inflammation being communicated to the peritoneum. This swelling of the parts contained within the pelvis may take place although the head be not impacted, but the head cannot long be impacted without producing that.

"Here, then, is one effect of a most formidable and alarming nature, which we apprehend in the case under consideration. But this is not the whole of

the evil; for the upper part of the vagina, or the cervix uteri, may be lacerated in consequence of this debilitated state, or any part of the uterus may be ruptured by strong and spasmodic action; or uterine or peritoneal inflammation may be excited previous to delivery, proving fatal in a few hours after labor is terminated; or hemorrhage may occur, to a fatal degree, from want of energy in the uterus after delivery; or general inanition and exhaustion are produced; the pulse becomes frequent, and at last feeble; the mouth parched; the skin hot; the mind confused, and the strength sunk; or the powers of life may be worn out, so that the patient shall die without any decided inflammation or disease referable to a common nosological system. In the 'Clinical Midwifery' of Dr. Robert Lee, who is no advocate for the frequent use of the forceps, and, indeed, who never uses them except when the head is at the lowest strait, occurs the following statement, which seems to me very significant: 'In thirty-eight cases of this report the labor continued from forty to seventy hours. In the cases of spontaneous rupture of the uterus and convulsions only was the delivery effected before the labor had lasted upwards of thirty hours. In a very large proportion of the cases the difficulty arose from distortion, or a contracted state of the pelvis. Rupture of the uterus took place in three before perforation; and the inflammation and sloughing of the uterus, vagina, and bladder, which proved fatal in eight hours, were chiefly or solely produced by the long-continued violent pressure on the soft parts, by the head of the child before it was opened and extracted. In those who recovered with vesico-vaginal fistula, or contraction of the vagina from cicatrices, the unfortunate occurrence arose from craniotomy being too long delayed.' In eighty-seven of Dr. Lee's cases, where craniotomy was performed, local lesions on the part of the mother are noted as having occurred in several instances. Out of the eighty-seven cases, eight, or about one in every ten, suffered from vaginal inflammation and sloughing; four, or nearly one in every twenty, were left with vaginal fistula. In a paper on the subject of 'Urethro-vaginal and Vesico-vaginal Fistulas,' published in the 'North American Med.-Chir. Review' for July and November, 1857, by Dr. N. Boleman, of Montgomery, Alabama, he states, that in nineteen cases of these fistulas 'the shortest duration of labor in any one of these cases was thirty-six hours, and the longest eight days; the average being about four days. In nine of these cases instruments were employed to aid in the delivery; in six no artificial means were resorted to.' He adds: 'Judging from the nature of the fistulous openings in the cases where instruments had been used, and where they had not, I am forced to the conclusion that nearly if not all of them were the result of sloughing.' In further confirmation of the views advanced as to the danger of delay in labor, I add a note from Dr. Sims, who has undoubtedly had a larger experience in the lesions resulting from parturition than any man living:—

"My dear Doctor—Out of about one hundred and twenty cases of vesico-vaginal fistula, I have had time to look over the histories of only seventy. Of these, forty-one were delivered by instruments, the rest being left to the unaided efforts of nature.

"These fistulas are sometimes produced by laceration, but most commonly by a slough, which is generally in proportion to the duration and degree of impaction, whether instruments are used or not. Instruments are often blamed for injuries which are produced, not by their use, but by the want of their timely application; in other words, by the prolonged pressure resorted to.

"The cases left entirely to the unaided efforts of nature, other things being equal, suffered the greatest loss of structure; those in which instruments were used sustained, as a rule, less loss in proportion as they were resorted to early or late, thus showing that the mischief was the result of prolonged pressure."

ART. 153.—A new method of treating Prolapsus of the Funis.

By Dr. T. GAILLARD THOMAS.

(*Transactions of the New York Academy of Medicine*, vol. ii. part 2, 1858.)

In a course of lectures on obstetrics, delivered by Dr. Thomas in the University Medical College of New York, about two years ago, he investigated this

subject, and came to the following conclusions: first, that the causes of the persistence of this accident (whatever may at first have produced it) reduced themselves to two, the slippery nature of the displaced part and the inclined plane offered it by the uterus, by which to roll out of its cavity;* and secondly, that the only rational mode of treatment would be inverting this plane, and thus turning to our advantage not only it, but the lubricity of the cord, which ordinarily constitutes the main barrier to our success. This he found could be readily accomplished by placing the woman on her knees, with the head down upon the bed, in the posture assumed by eastern nations in worship, and now often resorted to in surgical operations upon the uterus and vagina. Let it be remembered that the axis of the uterus is a line running from the umbilicus, or a little above it, to the coccyx, and it will be seen (here are two diagrams which make the point very evident) that by placing the woman in this position it will be entirely inverted.

Dr. Thomas then relates three cases in which he carried out this practice easily, and saved the life of the child, and after this he proceeds to lay down certain rules, which are—

1. That if the cord be detected in the unruptured bag, the woman be at once placed in position before escape of the waters, and that no efforts at return of the prolapsed part be made by the hand. The position alone will, I believe, cause its return to the uterus; and if it does not, we may do so manually as soon as the waters escape.
2. That if the pelvis be so fully occupied by the presenting part as to preclude return of the cord by the hand, a gum elastic catheter and tape to be used as a *porte-cordon*.
3. That no manipulations be commenced until the woman be placed in position.
4. That in returning the cord the whole hand be introduced into the uterus; the fingers alone will fail.

ART. 154.—*Port-wine enemata as a substitute for transfusion of blood in post-partum hemorrhage.* By Dr. LLEWELLYN WILLIAMS, of St. Leonards-on-Sea.

(*British Med. Journal*, September 4, 1858.)

CASE.—On September 22d, 1856, I was called into the country a distance of four miles, to attend Mrs. C—, æt 42, then about to be confined of her tenth child. All her previous accouchements had been favorable. When about six months advanced in pregnancy, she received a violent shock by the sudden death of her youngest child, since which time her general health had become much impaired. She had a peculiar pasty anæmic appearance, and complained much of general weakness.

On my arrival I discovered the os uteri fully dilated; the membranes ruptured spontaneously; and after three or four powerful pains, a fine female child was born. Placing my hand on the fundus uteri, I felt it slowly contracting under my grasp. My patient exclaimed, "I am flooding away," and fainted. I immediately had recourse to such restoratives as were at hand, and presently she began to revive. On making an examination, I found the placenta lying detached in the vagina, and removed it without difficulty, together with a large quantity of coagula. I had administered a dose of volatile tincture of ergot. The uterus continuing to contract feebly, and more than the usual amount of discharge being present, I applied some cold cloths to the vulva and hypogastric region; this having little apparent effect in arresting the discharge, though steady pressure was continuously applied with the hand on the abdomen, I had recourse to the plan recommended by Gooch, of throwing a quantity of cold water suddenly on the abdomen. My efforts still being foiled, and the hemorrhage continuing, the powers of life manifesting evident symptoms of flagging, I introduced my left hand into the uterus, after the manner also recommended by Gooch, endeavoring to compress the bleeding vessels with the knuckles of

* When the woman is placed on the side, the axis of the uterus is not so favorable to prolapse as when on the back; still it aids very much in causing the accident.

this hand, whilst with the other I pressed upon the uterine tumor from without. This combination of external and internal pressure was equally as unavailing as any of the other plans already tried. At last, by compressing the abdominal norta, as recommended by Baudelocque the younger ('*Mémoires de l'Académie des Sciences*,' January, 1835), I was enabled effectually to restrain any further hemorrhage. The condition of my patient had now become sufficiently alarming, she having been for upwards of half an hour quite pulseless at the wrist, the extremities cold, continual jactitation being present, the sphincters relaxed, and the whole surface bedewed with a cold clammy perspiration. It now became a question what remedy could be had recourse to, which should rescue the patient from this alarming state, it being utterly impossible to administer any stimulant by the mouth. My distance from home, together with considerable objection to the operation itself, which is not here needful to dwell upon, made me abandon the idea of transfusion of blood; but, as a means which I believe will prove equally as powerful as transfusion in arresting the vital spirit, I had recourse to enemata of port wine, believing that this remedy possesses a three-fold advantage. The stimulating and life-sustaining effects of the wine are made manifest in the system generally; the application of cold to the rectum excites the reflex action of the nerves supplying the uterus; and the astringent property of port wine may act beneficially by causing the open extremities of the vessels themselves to contract.

I commenced by administering about four ounces of port wine, together with twenty drops of tincture of opium. It was interesting to note the rapidity with which the stimulating effects of the wine became manifest on the system. Two minutes after the administration of the first enema, there was a slight pulsation distinguishable in the radial artery, which perceptibly increased in strength for the space of five minutes, after which the pulse again began to flag, and I had recourse to the administration of a second enema twenty minutes after the first. A more marked improvement was now manifest in the patient. She regained her consciousness; the pulse continued feebly perceptible at the wrist. In half an hour I had again recourse to the enema, with the most gratifying result; and, after ten hours' most anxious watching, I had the happiness of leaving my patient out of danger. The quantity of wine consumed was rather more than an ordinary bottle.

ART. 155.—*On the treatment of Uterine Hemorrhage.* By the late Dr. LABATT, late Master of the Rotunda Lying-in Hospital, Dublin.

(*Dublin Quarterly Journal of Medicine*, May, 1858.)

The following remarks, which have much practical value, occur in a paper edited by Mr. Hamilton Labatt, the son of the writer:—

"First," says Dr. Labatt, referring to a case which he has just related, "I kept the patient out of bed, as advised by Dr. Denman, till the child was on the point of being born, being of opinion, with Dr. Denman, that the erect position is favorable to uterine contraction. Secondly, I allowed the child to be entirely expelled by the action of the uterus, and even opposed some resistance to its progress through the passages, and immediately after administered a cordial anodyne draught, which I have for many years been in the habit of doing in such cases, and often with great advantage, always combining the opiate with a cordial. Thirdly, I firmly held the uterine tumor in my grasp for several hours, and then applied a pad and roller. It was the invariable practice of all the old practitioners in this city to give a glass of burnt brandy with nutmeg, immediately after delivery, and I think such a cordial will often be found beneficial, by promoting uterine contraction, and thereby favoring the separation and expulsion of the placenta, and I cannot say that I have ever known it to produce injurious consequences."

And in another place:—

"Although I do not at present mean to treat of the general management of uterine hemorrhage, I think it well to offer a few remarks on the use of opium, which has of late been largely used by some practitioners. I have read accounts of cases of flooding, in which seven or eight hundred drops of tincture of

opium were given within six or eight hours, and, as alleged, with the best effects. The opinion which I had long held respecting the nature of the proximate cause of uterine hemorrhage in childbed, and the effects I had often witnessed of large doses of opium on uterine action, led me to suppose that it was not likely, in such large doses, to prove beneficial in the complaint in question. However, the extraordinary success attributed to the practice by some respectable practitioners led me to give it a fair trial, and the result has been a conviction on my mind that opium ought not to be given too freely in floodings attended with great weakness. I have generally observed that, when administered in very large doses, it increases the weakness, disorders the stomach, and tends to suspend the healthy uterine contraction, and prolong rather than check the discharge. It is good practice to give a moderate dose of black drop, or Battley's sedative liquor combined with burned brandy, volatile aromatic spirit, or Hoffmann's liquor, immediately after the birth of the child, when we have reason to apprehend flooding, and the same may be repeated if necessary.

"It is generally supposed that if, after the expulsion of the placenta, the uterus be felt well contracted, small, round, and firm over the pubis, there is no reason to apprehend hemorrhage; this may be true to a certain extent; nevertheless, if due care be not taken to maintain this state of salutary contraction by the means already advised, the uterus may relax, and hemorrhage ensue; therefore, the cautious attendant will patiently continue his preventive measures till all immediate danger of hemorrhage shall have subsided, and then apply his pad and roller.

"I would here beg to offer a suggestion, for the guidance of the young practitioner in his attendance during the anxious and critical period of childbirth. I would strongly urge him to remain with his patient as much as he possibly can, from the commencement of labor to its termination; his presence will be acceptable to the friends of the patient, and comfortable and cheering to herself, and she will have the benefit of seasonable advice and assistance on any of those emergencies which every now and then unexpectedly occur in the progress of labor. But this is not all; the presence of the confidential medical attendant, and his humane and kind deportment, will inspire the sufferer with confidence and hope, and thus, by the well-known influence of mental impressions on the action of the uterus, will tend to lead the case to a speedy and happy issue. I do not pretend to say that such is the invariable result, for I have known cases to go on slowly where the practitioner remained for hours on the spot, and where, during his short absence, pains suddenly increased, and accomplished the delivery before his return; but I have seen more than sufficient to justify me in asserting, that if accoucheurs would remain more at the bedside of the patient than is the practice of the present day, and sometimes pretend to assist, with the intention, as Dr. Denman remarks, of giving confidence to the patient, or composing her mind, the duration of labor and sufferings of the patient would often be abridged; and I dare to say that the success of Dr. Hamilton, who assures us that 'no patient under his charge for the last thirty-five years has been above twenty-four hours in labor, and excepting in cases of disproportion, none so long,' was more owing to this circumstance than to any direct manual aid he may have afforded."

ART. 156.—*On Puerperal Convulsions.* Dr. R. U. WEST, of Alford.

(*Assoc. Med. Journ.*, May 26, 1854.)

In this paper Dr. R. U. West holds that all cases of genuine convulsions depend more or less on *irritation* of some kind; that cerebral congestion is to a greater or less extent induced in all; that that is the condition which is so uniformly relieved by bleeding; and that, for the sake of applying "the principle of removing the cause of the convulsions, of substituting new modes of irritation different from that which has produced the convulsions," to repeat the language of Denman, it is suggested that the most useful practical classification of convulsions would be:—

CLASS 1. *Irritation uterine.* Convulsions *during* labor, and generally ceasing

on the termination of the process. *Treatment*: bloodletting to remove induced congestion; but chiefly, speedy delivery.

CLASS II. Irritation extra-uterine, and interfering indirectly with the establishment of the labor through the diverted nervous influence. Convulsions preceding labor, which appears to be imminent, and ceasing or becoming materially milder on the accession of true labor. *Treatment*: bloodletting as in class I, and for the same reason; but chiefly the induction of the labor process, which will probably prove to be the natural counter-irritant, while at the same time attention must be paid to the removal or alleviation of ascertained or probable causes of extra-uterine irritation. Other counter-irritants, such as sinapisms, may also be used.

A MIXED CLASS, between these two. *Irritation* probably uterine, and consisting of some cause, such as excessive rigidity of the os uteri, calculated to prevent the parturient process from going on normally. Convulsions *before and during* labor. *Treatment*: bloodletting as before, and for the same reasons; but chiefly the removal of the cause which appears *directly* to hinder the process from going on.

CLASS III. *Irritation* sometimes mental, sometimes of a physical extra-uterine nature. Convulsions coming on *after* the labor, the parturient process having possibly, by its *natural counter-irritant* effect, prevented the play of the pernicious influences now set at liberty. *Treatment*: bloodletting as before, and for the same reasons; and, as far as possible, the removal or alleviation of probable sources of irritation; while, as in class II, different forms of *artificial counter-irritation* may also be tried.

A MIXED CLASS, between the last two. *Irritation* probably uterine, and continued either from the induced excited state of the nervous system, or perhaps, in the worst cases, from some lesion within the brain. *Treatment*: perseverance in the plans usually successful in convulsions; but chiefly counter-irritation of various kinds—sinapisms, blisters, &c., supposing bleeding to have been already practised.

ART. 157.—*Iodide of Potassium as an Anti-lactescent.* By M. ROUSSET.

(*Journ. de Méd. de Bordeaux*, May, 1858; and *Gaz. Hebd. de Méd. et Chir.*, Sept. 17, 1858.)

In cases where it is desirable to suppress the secretion of milk—inflamed breast or nipple, the birth of a dead child, and so on—M. Rousset has for some time been in the habit of using iodide of potassium in tolerably full doses. The anti-lactescent action, he tells us, is soon apparent. He appears to have had seven cases in which he has tried this treatment; but these are not reproduced in the 'Gazette Hebdomadaire.'

ART. 158.—*Normal Lactation in the human race.* By Dr. Wm. HENRY CUMMING.

(*American Quarterly Journal of Medical Science*, July, 1858.)

In vigorous women the secretion of milk is copious; and this large amount is indicated in the unimpregnated state by the great development of the mammary glands. In no animal with which we are acquainted is there a larger promise in this respect. The amount ordinarily furnished by a good nurse is from one and a half to two quarts daily, or from four to five pounds; but cases often occur in which two children receive abundant supplies from one mother, involving a secretion of eight pounds at least. An infant three months old will take from forty-eight to sixty-four fluid ounces daily, in six or eight half-pint doses. During the first year, therefore, he will take from 1000 to 1300 lbs.

What is the composition of this milk? Without entering into long and tedious details, it may be simply said that, by the latest and apparently the most exact analysis, its composition is—

Butter 20.76	1000 lbs. therefore contain	Butter 20.76 lbs.	1300 lbs. therefore contain	Butter 27 lbs.
Casein 14.34		Casein 14.34 "		Casein 18½ "
Sugar 75.02		Sugar 75.02 "		Sugar 97½ "
Water 889.88		Water 889.88 "		Water 1157 "

In 1000 lbs. of milk there are 1.6238 lb. of salts, or 26 ounces, of which 0.5736 lb., or 9 ounces, are phosphate of lime.

In 1300 lbs. of milk the salts amount to 2.1 lbs., or 33½ ounces, of which 12 ounces are phosphates of lime.

It thus appears that, during the first year, the child receives from 110 to 143 pounds of dry solids. He may thus readily gain 15 or 20 pounds in weight (implying less than three pounds of dry solids), and yet have a large residue—from 107 to 140 pounds—to be expended in the production of heat, and in the activity of an energetic vitality. A child thus nourished can make teeth and bone without difficulty; his functional activity need never be suspended for want of material; atmospheric changes may be successfully resisted, and zymotic diseases will have little power.

And where, in the whole range of animal existence, will you find a more beautiful object than a vigorous healthy child? Look at his deep and peaceful sleep; see the bright sunshine of a pleasant dream upon his gentle face. Look at him as he awakes. Listen to the sweet sounds he makes for his own pleasure, or to attract the notice of those near. And if he should at last break out into loud cries, see how quickly all traces of sorrow pass away and bright smiles replace them, when his mother comes. See the eagerness with which he takes his food, the intense earnestness with which he clings to the abounding breast, and the full and deep satisfaction when this want is supplied. And when able to play, how loud and merry his laugh! How joyfully he receives caresses, or rides upon the knee, or springs in the arms of the parent or the nurse! There is no happier animal than a healthy child, nor is there anywhere to be found a more regularly operating and uninterrupted harmony of the vital functions. The beauty and energy of the outward frame are not more striking than the symmetrical development of the mental powers. The close and careful and patient observation, the cautious experiment, the unsuspecting credulity, the prying inquisitiveness, who has not beheld with admiration and delight?

This is infancy under the influence of favorable physical conditions; but, alas! how few children among us progress thus steadily and rapidly during their first two years! How commonly do we associate with infancy the ideas of sleeplessness and fretfulness, and all manner of gastric, intestinal, and nervous disorders! Why is it that "teething" does not mean the steady, silent, unnoticed development of the teeth, but salivation, and fever, and diarrhoea, and convulsions, and death? It is not pretended that there is never any other cause but insufficiency of proper food; but there is reason to believe that four-fifths of the sufferings of infancy arise from this source. And how can it be otherwise? Look at the mothers, and say how many of them can give daily three or four pounds of good milk to their nurslings. How many can furnish 110 or 140 pounds of dry solids in the first year? How many can satisfy, can fully meet, the demands of even a feeble child? A *strong, vigorous, fat woman*, almost always loses weight while nursing her child. The milk draws away more than the stomach of even such a woman can replace, and the balance is taken by absorption from her previous accumulation.

And here listen to an important practical remark; a woman loses in an ordinary parturition not more than 20 pounds, containing less than 3 pounds of dry solids. This amount, furnished in nine months, is at the rate of 4 pounds of dry solids a year. Many women fail to furnish fully even this small amount. The infant at birth is small and meagre, looking like a starveling. Is it to be expected that such a mother will make a successful nurse? If unable to furnish this small amount, how can she supply thirty or forty times as much?

The truth is, that a woman, in fully nourishing her child, must furnish as much milk in proportion to her weight as a good cow. A woman weighing 130 pounds will give daily 4 pounds of milk, containing about 5 ounces of dry solids; the cow, weighing six times as much (780 pounds), will give 20 pounds of milk, containing 30 ounces of the same. It should not, then, surprise us that so many mothers fail to supply enough food for their infants. It requires great physical energy and powerful digestion to perform this work. How few mothers are thus endowed! If we may judge by the amount of food consumed by

a vigorous woman during the period of lactation, we should decide that the ordinary labor of a working man is less exhausting than the function we are considering. Certain it is that a vigorous woman, of strong digestion, while nursing a child, will eat largely, and yet lose weight.

The cases in which natural lactation fails are so numerous as to excite the deepest concern. Human milk can seldom be obtained, and none of the usually employed substitutes ordinarily succeed. Is it, then, too much to hope that physicians will give serious attention and thoughtful consideration to a plan offering a substitute for human milk, scientifically correct and practically successful?

ART. 159.—*Case of a pregnant Woman in whom both the Mammæ had been extirpated.* By ROBERT LEE, Obstetric-Physician to St. George's Hospital.

(*Medical Times and Gazette*, July 24, 1858.)

CASE.—September 9th, 1828. A woman, about forty years of age, in the last month of pregnancy, applied at the Westminster General Dispensary this morning for a midwife to attend her during her labor. She stated that both mammæ had been removed for a cancerous affection several years ago, and that since their removal she had borne five children, which she had brought up by hand, and that they were all now in good health. Previous to the extirpation of the mammæ, which was performed in Ireland, she had borne two children. She states that her mother, and, I think, one of her sisters, had been destroyed by cancer of the breast, and that she, becoming alarmed for herself in consequence of the appearance of hard painful tumors in both her mammæ, consented to have them removed, which was accordingly done by a surgeon in Ireland. The glands had been completely removed, and the cicatrices were distinct. Since the operation she has enjoyed excellent health. During gestation nothing unusual is experienced in the situation of the breasts; but the second day after confinement there is an unusual fulness in the parts, and in the glands of the axillæ, similar to what occurs after delivery, when the secretion of milk is about to take place.

"I had nearly forgotten this case, when I received the following note from Sir Benjamin Brodie, which made me refer to my journal, where it had been recorded:—

"'Broome Park, near Dorking, Surrey,

"'September 29th, 1843.

"'My dear Sir: Will you be so kind as to inform me whether you have any experience as to what will happen to a woman who, having lost both her breasts, was delivered of a child? Would the constitution suffer from the entire loss of the apparatus for secreting milk under such circumstances?

"'Believe me to be, dear sir, yours always truly,

"'B. C. BRODIE.'

"In reply to this note, I inclosed a copy of the history of the preceding case from my journal. I have not since 1828 met with any other case like this."

ART. 160.—*Starvation of a Child from Paralysis of the Facial Nerve in consequence of a Forceps Operation.* By Dr. HOLL.

(*Monatschr. für Geburtskunde*, Oct., 1857.)

In the report of the lying-in hospital at Halle, a case is related in which the death of a new-born child was brought about in a very unusual manner. A woman, in whom labor was arrested through complete absence of uterine contraction, was delivered by the forceps, the head lying in the pelvic cavity. In consequence of the pressure of the left blade of the forceps, there resulted a paralysis of the facial nerve of the left side, which resisted all treatment. By this the infant was hindered from sucking, as all the milk ran out of the corner of the mouth on the paralyzed side. Everything, prior to being swallowed, had to be placed within the grasp of the muscles of the pharynx. The child was thus gradually reduced by atrophy, and died on the twelfth day.

(B) CONCERNING THE DISEASES OF WOMEN.

ART. 161.—*On Infra-mammary Pain.* By Dr. COOTE.*(Medical Times and Gazette, July 10, 1853.)*

The author remarks that pain immediately below the left breast, not of rheumatic origin, and unattended by any signs of visceral disease, has been recognized for about forty years as a very frequent, and often a severe and intractable, malady. Nevertheless, its pathology might be regarded as absolutely unknown, and its treatment was, of course, proportionately uncertain. It seemed, therefore, worth while to reopen the subject by the observation of fresh facts. He had, therefore, analyzed a series of fifty cases, with the view of determining, firstly, the true characters of the pain, and, secondly, the conditions under which it was prone to occur. In the first place, it was necessary to distinguish between two painful affections, to both of which the infra-mammary region was liable, and the confusion of which seemed to account for many contradictions in earlier descriptions. The one (to which the name of intercostal neuralgia ought to be restricted) might affect any part of the thoracic walls. Its character was acute, plunging, paroxysmal. It was seated in one or more intercostal spaces, chiefly in those parts where the cutaneous branches of the nerves are most freely distributed, and it sometimes appeared to shoot round the chest, as if along the course of a nerve. There was occasionally much superficial tenderness, and the pain was sometimes periodical. The author thought it probable that the pain of herpes zoster and that of mastodynia belonged to this category. The other pain (improperly confounded with that just described) was much more common. It was a dull, aching pain, situated in one definite locality under the left breast, and extending generally over the seventh, eighth, and ninth ribs, with the seventh and eighth intercostal spaces; never appearing to shoot along the course of a nerve, but often darting through the chest to the back or into the throat; in the former case, seeming to give rise to the interscapular pain; in the latter, being intimately associated with the hysterical globus. It was rarely marked by any considerable tenderness on pressure, and it was not periodical. It was to this affliction alone that the author wished to draw the attention of the society, under the (provisional) appellation of infra-mammary pain. Having discussed in detail each of the characters of the pain, he examined briefly the most popular hypotheses which had been devised to account for it. He dissented from Dr. Inman's view (that it is a true muscular pain, the exponent of fatigue or of mal-nutrition), on the ground that it entirely failed to explain the localization of the pain. There was no condition in the modes of life of the patients calculated specially to affect the pectoral and abdominal muscles of the left side. A more plausible hypothesis connected infra-mammary pain with uterine or ovarian disorder. Here a preliminary question arose, which the literature of the subject entirely failed to solve—whether the pain was peculiar to females? It was certainly of rare occurrence in the male; but the author thought he had noticed two unambiguous cases of it within the last eighteen months. Leaving this question open, and assuming, for argument's sake, that it was limited to females, he proceeded to inquire whether, in them, it was dependent upon uterine disorder. With respect to age, he found that the period of uterine activity was the favorite, but not the exclusive, epoch of the pain. Marriage exercised no perceptible influence upon it. Overlactation and excessive child-bearing were recognized in a few instances only. Four women were sterile; 7 had a liability to abortion. The menstrual function was physiologically absent in 20. Of the remaining 30, it was perfectly normal in 11; regular, but scanty, in 7; regular, but profuse, in 4; irregular or absent in 8. Leucorrhœa was acknowledged in 10 cases only, in 6 of which uterine disease existed. These facts appeared to be conclusive against the hypothesis. That uterine disorder frequently accompanied infra-mammary pain was certain; that it should be the cause of it was impos-

sible; for those two things could not stand to each other in the relation of cause and effect, each of which might exist in the absence of the other. The next hypothesis was that of "spinal irritation." This term had been so stretched as to become meaningless, but the original idea differed very little from that of "central neuralgia." That infra-mammary pain depended upon some central (spinal) disorder, might or might not be true; but it was wholly unproved; and the attempt to prove it from spinal tenderness in such cases was doubly unfortunate. For, firstly, spinal tenderness was by no means a constant companion of infra-mammary pain; and, secondly, if it were so, it would be no evidence of spinal disease. The next hypotheses discussed were those of Ollivier and of Brown of Glasgow. Both agreed that the pain was the result of pressure upon the roots of spinal nerves: the former referring it to a congestion of the intra-vertebral plexus of veins, the latter to a transient curvature of the spine, occasioned by disproportioned fatigue of some one set of spinal muscles. These opinions were out of the sphere of argument. For, first, it was very doubtful whether such pressure would produce pain at all, and not rather anæsthesia; and, secondly, there was absolutely no evidence of the existence of any such pressure. Another explanation, also based upon the idea of pressure, had been propounded by Henle; and this possessed the singular merit of recognizing, and, in some measure, of accounting for, the localization of the pain. The anatomical character by which the left infra-mammary region was distinguished was the peculiarity of its venous circulation, the effect of which was that, if any obstruction existed to the return of the venous blood by the azygos vein, the brunt of the pressure would fall upon the intermediate intercostal spaces of the left side. Henle thought that such pressure, acting upon the peripheral extremities of the intercostal nerves, might occasion the pain; and he sought to dovetail his theory in with other received views, by suggesting that the first impulse to disturbance of the circulation might be given by uterine or ovarian congestion. There was little to object against this explanation, if the uterine element were eliminated from it, and the more physiological notion of interrupted nutrition were substituted for the mechanical idea of pressure. One link was, however, still wanting, viz., some proof that, in these cases, vascular disturbance exists. The author then gave the results of his own analysis. The constitutional character of the patients was well marked, being universally that of defective nutrition. Twenty-one were anæmic. The concurrent diseases were phthisis, secondary syphilis, and diabetes mellitus. The functional derangements accompanying infra-mammary pain were grouped under four heads. 1. Disorders of the nervous system, consisting of (a) various pains, of which the interscapular alone appeared to be essentially connected with infra-mammary; and (b) spasms, especially the globus, and hysterical or epileptiform fits. In three instances these latter were always preceded by infra-mammary pain. 2. Disorders of circulation; variability of temperature, irregularity of the pulse, palpitation of the heart. 3. Derangement of the abdominal viscera; vomiting of porraceous or grumous matter, or of blood; constipation, or diarrhoea; the urine alternately "hysterical," and loaded with lithates. 4. Disorders of the reproductive system; uterine disease, leucorrhœa, irregular menstruation, sterility, abortion. The author proceeded to argue that the three latter groups might be readily referred to one head—disorder of the vaso-motory system of nerves. For that it was experimentally certain that paralysis of these, the motor nerves of the smallest arteries, had, as its immediate physical result, exalted temperature and local congestions and fluxes; and hence it seemed probable that to temporary depression of these nerves might be owing the irregular flushes, the porraceous or grumous vomiting, the deranged renal secretion, the ovarian and uterine disorders, so common in these cases. And as the muscles of the intestinal tube were supplied by nerves of the same order, the same hypothesis would explain the occurrence of obstinate constipation, associated as it is with hyperæmia of the mucous membrane. Hence he inferred, first, that infra-mammary pain was a symptom of a generally depressed state of nervous power; and, secondly, that it was one of a group of symptoms intimately connected with vaso-motory, and therefore with vascular, derangement; thus returning to the hypothesis pro-

posed by Henle, and supplying the defective link. The conclusions drawn were as follows: True infra-mammary pain was a peripheral neuralgia, having its probable origin in mal-nutrition of the nerves of the part. This, again, resulted from disordered circulation affecting the left infra-mammary region especially, by reason of its peculiar anatomical relations. The immediate cause of this vascular derangement consisted in disordered enervation of the smaller arteries of the whole body, occasioning irregular spasms and dilatation of their walls; a condition which, while in the infra-mammary region it occasioned neuralgia, in other parts gave rise to chills and flushes, to palpitation, to excessive or defective secretion, to congestions, hemorrhages, and fluxes; while an analogous state of the motor nerves of the alimentary canal produced obstinate constipation. The cause of this disordered state of the vaso-motory nerves was to be sought in more general conditions. The female, possessing naturally greater nervous irritability than the male, and physiologically destined to undergo great developmental changes, was far more liable to all these derangements, especially when suffering from want, or exhausting toil, or depressing or debilitating sickness. But there seemed no reason to deny the possibility of their occurrence, under analogous conditions, in the male. If these views were correct, the indications for treatment were twofold; first, to stimulate the vaso-motory nerves into temporary activity, so as to relieve special symptoms; secondly, to give them permanent vigor by improving the general nutrition of the body. With respect to the first indication, the special nervine stimulant had often produced satisfactory, although temporary, results. Counter-irritation nearly always gave temporary relief, probably by unloading distended vessels. It was equally efficacious when applied to any part of the affected side. Topical applications to the vagina and uterus, in cases of leucorrhœa, &c., had produced no effect upon the pains. Sometimes the leucorrhœa was cured, leaving the pain as bad as ever; sometimes the pain disappeared, the leucorrhœa persisting. The second indication could be only briefly alluded to. Good food, air, above all, rest, were essential; and to them tonic medicines were merely auxiliary.

ART. 162.—*The Right Use of Sedatives in Diseases of the Womb.* By Dr. TILT, Physician to the Farringdon Dispensary.

(*Lancet*, May 22, 1858.)

"Pain is almost synonymous with disease, and is proverbially frequent, whether as the symptom of well-understood morbid conditions, or as the sole indication of disease. Pain can generally be cured by the systematic treatment of the attendant diseases, though it often specially indicates the exhibition of sedatives; and then the question arises whether they should be exhibited so as to act first on the system, or whether they should be directed to the seat of pain. Doubtless, a strong opiate, fully affecting the nervous system, has been known to remove the pain localized in some well-circumscribed spot, but in many cases it only procures a small abatement of the suffering, and the same dose cannot be repeated sufficiently often to cure neuralgia without locking up the internal secretions, and entailing a state of semi-narcotism very distressing to the patient. For these reasons, when sedatives are used in neuralgic affections, they should be applied as near as possible to the seat of pain. We foment the painful spot with sedative fluids; we rub in sedative ointments and embrocations; we leave them on the skin, so as to envelop the extremities of the sentient nerves in a sedative atmosphere; we apply opiates to the denuded skin—they have even been injected with benefit into the tissues surrounding the agonized nerve. Although this principle is generally accepted as correct, it is not sufficiently followed in the treatment of diseases of women. I therefore propose showing what good results may be obtained by putting our practice in harmony with well-grounded theory.

"He must indeed be young in practice who is not aware how frequently pain and neuralgia, under various forms, appear as an important symptom of morbid menstruation, of diseases at the change of life, and of uterine and ovarian affections. Neuralgia in connection with the reproductive system is still more

frequent in women of the upper classes, in whom a nervous temperament has been inherited, and rendered more intense by injudicious schooling and by habits at variance with correct notions of hygiene. Suppose a patient suffering habitually from nervous uterine irritability, from bearing-down pains, vesical tonismus, and severe pains in the sacrum and thighs, the necessity for sedatives will strike every one. Most medical men will give them by the mouth, either in such moderate doses that the patient's sufferings will be long in abating, or, should the quantity have been sufficient to assuage the pain, the drugs may have acted so strongly on the system that it would take some days to recover from their poisonous effects. Afraid of this, others would apply sedatives to the pelvic regions or the loins; but before relief could be given much time must elapse, though, if the fomentations had been associated with sedative injections into the rectum, relief would soon be afforded, without any subsequent ill effects, because, the remedy being applied directly to the diseased nerve, the dose could be proportioned to the intensity of the pain. Is it not, then, better to give sedatives by the rectum than to leave a patient in an habitual state of suffering, or with the occasional variation of an overdose of opium? This is applying the remedy to the right place, or *applying the sedative as near as possible to the suffering nerves*. In severe cases of uterine or ovarian neuralgia one ought not to prescribe in the dark. An accurate examination must be made, and none is accurate unless the eye can confirm the testimony of the finger. Often the neuralgic affection has been caused, or at least kept alive, by some slight ulceration of the neck of the womb, which can be seen but not felt; and when this is cured by surgical treatment, the neuralgia vanishes. At other times patients suffer greatly from abdominal neuralgia and slight uterine disease, which I have promised speedily to cure by cooling injections and slight applications of a strong solution of nitrate of silver at stated intervals. By these means I have soon cured the ulceration, but the patient, continuing to suffer as before, rings the changes on medical men, until cured by some more fortunate practitioner, or by time—the great physician. Such cases are not rare.

"Although advocating in no weak terms the use of sedatives, I in nowise repudiate what is advanced in my various works on the utility of surgical treatment in uterine affections; but only assert that uterine pathology is not all included in ulceration of the neck of the womb, and that caustic is not the sum and substance of uterine therapeutics. In the milder forms of ovario-uterine neuralgia, as it attends morbid menstruation, diseases of the change of life, inflammatory and other diseases of the womb, I maintain that the neuralgic element should be attended to, although constitutional remedies and surgical treatment may be likewise required. The use of sedatives in such cases paves the way to more rapid cure, and I advisedly use the plural number, as it is better to exhibit a combination of several sedatives than one alone—a general principle of therapeutics well explained in the late Dr. Paris's 'Pharmacologia,' and which applies forcibly to diseases of women. In the cases above specified, I order a camphorated liniment, to the four ounces of which I add half an ounce of laudanum and two drachms of tincture of aconite. I recommend this to be rubbed carefully, for five minutes, on the lower part of the abdomen, or on the sacral region, or on both if they be the seat of pain. The application may be rubbed off; but the treatment will be more successful if left on, and a wadding poultice applied, and kept in place by a piece of oil-silk sufficiently large to wrap round the loins and fold over in front, thus enveloping the lower part of the abdomen in a sedative vapor bath. Should this be ineffectual, I prescribe sedatives by the rectum, beginning with the following prescription: Battley's solution, one drachm; tincture of hyoscyamus, one ounce; spring water, three ounces. Half an ounce of this lotion contains one scruple of Battley's solution and one drachm of tincture of hyoscyamus, and I order this or double the quantity to be put into a two-ounce India-rubber bottle. This the patient fills up with warm milk, and after screwing on the canula, and anointing it with a little cold cream, it should be gently pushed up the bowel. When this is done, the firm pressure of the bottle by the hand will empty its contents into the bowel; the bottle should then be withdrawn; the mild nature

of the fluid and its small bulk almost always allow of its being retained. This should be used twice a day; and if ineffectual, I add to the four-ounce solution one drachm of tincture of belladonna, or one or two scruples of tincture of aconite, or both quantities, which can be varied to meet the exigencies of different cases. These sedative solutions may be used likewise as vaginal injections, care being taken to so raise the pubis as to enable the fluid to be retained; but as this must be intrusted to the patient or nurse, it is impossible to know what quantity of the solution is placed in contact with the womb, and how long the contact is maintained. Therefore I deem it better to prescribe the sedatives by the rectum when their administration is to be intrusted to the patients themselves. When it is remembered that the reproductive organs are intimately connected with the lower part of the bowels by nerves, bloodvessels, and cellular tissue, one can understand that an excellent way of acting on the womb is by the rectum, the more so as its mucous membrane has a greater power of absorption than that of the vagina. I have dwelt on this at greater length in my work 'On Diseases of the Change of Life,' and shown that this mode of treatment is useful not only in the specified cases, but in cancerous affections of the womb, when it is necessary to abate the severity of pain without injudicious interference with the fragile tissues of the womb. This mode of treatment has even a wider range than the removal of pain, for many obscure nervous affections may be thus amended, and mental affections may be thus cured when they depend on a perverted action of the reproductive system.

"One of the cases stated in the work just mentioned was a patient of my friend, Dr. J. Brown, of Chatham, who had for many months been troubled with strange delusions, and secluded herself from society. I took so serious a view of her case, that I told her husband my fear that it would soon be advisable to place her under restraint; but as there had been a great amount of uterine neuralgia ever since the cessation of menstruation, there was a chance that, by quelling this irritation, the nervous system might be calmed, and the mind strengthened. I therefore ordered strong sedative injections by the rectum, which were continued for some months, and were without doubt the principal means of restoring her to her previous state of good health.

"Such measures are generally found successful; but sometimes the patient will not or cannot retain the medicated fluid, and narcotic suppositories are objected to, or else the neuralgia may be too severe to yield to the treatment.

"Two years ago I was asked to see a lady residing a few miles from town. She was married, about thirty, of diminutive stature, nervous temperament, dark complexion, and reduced to extreme emaciation, having literally been confined to her bed for several months by an excruciating pain in the back and in the lower part of the abdomen. The pain was constant, but with paroxysms more violent at the menstrual periods. The flow was scanty, and there was a semi-purulent vaginal discharge. She had slept but little for many months, and had digested scarcely any food. The pain in the back was so intense that the late Mr. Lonsdale was consulted, and he is said to have called the case one of 'hysterical spine.' On examination, I found the womb exquisitely sensitive, its neck considerably swollen, and slight ulceration round the os uteri. Three leeches were applied to the womb; but the loss of blood they gave rise to, and the increase of pain they determined, prevented my repeating the application. I touched the ulcerated surface twice with the solid nitrate of silver, and afterwards with a strong solution at four days' interval; cooling injections were used; and in a few weeks after the ulceration was healed, the uterine swelling had diminished, but the habitual pains had but little abated, and the rectal injections could not be retained by the patient. Such being the case, I placed one grain of acetate of morphine in a little cotton wool, folded it up, tied a piece of twine round it, and carefully placed it close to the neck of the womb. I then withdrew the speculum, leaving a piece of twine protruding, so that the patient might withdraw the little apparatus at the end of twenty-four hours, during which time no injections were to be made. Three days afterwards I applied two grains of the morphine salt in the same way; and four days afterwards, three grains. The day after this application there was a sudden abate-

ment of the pains; and so great was the improvement, that the lady, who for months had only been able to crawl down stairs, to be carried back to her bed, was able to sit upright for several hours, and was not over fatigued by a two hours' drive. This sudden amendment continued, so that in a few weeks she was able to leave for the sea-side.

When I have had to do with submissive patients, I have never found this treatment fail in cases of uterine neuralgia, except once, when it was caused by pregnancy, and then, after trying various means, I resorted to this; but it brought on an alarming paroxysm of tenesmic pain, which subsided on the removal of the cotton wool. This patient continued to suffer until delivery, and I think pregnancy would not have gone its full time had I not found in the tincture of Indian hemp an admirable means of mitigating the severity of the pains.

"When the patient is married and the case severe, it is better to apply acetate of morphia carefully by means of the speculum and forceps. It may, however, be applied without using the speculum. If the forefinger of the right hand be introduced into the vagina in the usual way, along this finger the left hand can easily glide the forceps, armed with the cotton wool, until the neck of the womb is reached. When possible I renew this application every second day. In this manner it is easily understood that the fluids in the vagina dissolve the acetate of morphia, and that the solution acts on the neuralgic womb. From the medical journals I find that Dr. Aran, of the Hôpital St. Antoine, has extensively followed the same idea. His plan is, to let fall one or two drachms of laudanum into the speculum previously introduced, fixing the fluid in the vicinity of the womb by a tablespoonful of powdered starch. Dr. Aran repeats the application every second day or every day, and has not seen the treatment followed by symptoms of narcotism. He has found it effectual in cases of uterine or ovarian neuralgia subsequent to inflammatory affections, or complicating uterine deviations. He has, like myself, found it useful in those singular and painful conditions of the womb which occur at the change of life. For the last six months, since I have been aware of Dr. Aran's plan, whenever I have to apply the speculum for the surgical treatment of uterine disease, I conclude by pouring into the tube a teaspoonful of Battley's solution and spoonful of starch powder, even when no pain is complained of, and it seems to promote the rapidity of the cure. I think, however, that my plan of applying the salts of morphia to the neck of the womb is preferable in obstinate cases of uterine neuralgia, like the one I have related. The question of priority is one of little importance to me; and Dr. Aran's testimony in favor of an idea which I have carried out for the last two years, made me think it worth while drawing attention to the right use of sedatives in uterine affections."

ART. 163.—*On exfoliation of the epithelial coat of the Vagina, producing casts of that canal; with remarks on the true form of the Vagina.* By Dr. ARTHUR FARRE, Obstetric Physician to King's College Hospital.

(*Dr. Beale's Archiv. of Med.*, No. II., 1858.)

In cases of dysmenorrhœa, as is now well known, certain portions or sometimes the whole of the natural lining of the uterus may be shed in the form of a dysmenorrhœal membrane. The identity of these membranes with the mucous lining of the uterus, as well as with the decidua formed in early pregnancy, does not admit of dispute; and it is probable that a knowledge of this fact has led to the supposition, that all apparently membranous substances discharged under such circumstances, when not consisting of coagula or products of conception, are of this nature; but Dr. Farre has satisfied himself that some of these are not only materially different in structure from dysmenorrhœal membranes, but are not even of uterine origin.

This is the case with the three examples selected for the subject of the present communication.

The first occurred several years ago, in the case of a lady who came under my care for occasional attacks of dysmenorrhœa. Learning that she sometimes passed membranes, he procured one of these, and examined it carefully under

fluid. The substance expelled consisted of a thin double layer, of a somewhat slight yet tough and parchment-like membrane, of an opaque white color, and smooth almost lustrous or pearly surface. It appeared at first to be a cast of the flattened interspace between the uterine walls which constitutes the cavity of that organ, and exhibited very much of the triangular form of the uterus. The two membranous layers of which it was composed were in close apposition, and were bounded by a peculiarly sharp, thin border, like the marginal folding of the uncut pages of a book.

Yet, supposing this to have been ejected from the uterus, there were still many conditions irreconcilable with such an hypothesis. The size of the entire cast, which exhibited the triangular outline of the uterus, was more considerable than the cavity of that organ in the usual unimpregnated state. The angles which should correspond with the points of entrance of the Fallopian tubes showed not the slightest trace of an aperture, and nowhere was there any of that cribriform appearance, produced by the pores of the uterine glands, which is so characteristically shown upon the inner surface of true dysmenorrhoeal membranes, while the outer surface was not rough, but smooth and lustrous. The whole was found, upon microscopic examination, to consist of broad flattened nucleated cells of pavement-epithelium, and was entirely destitute of the histological characters of the uterine mucous membrane.

A preparation in the anatomical museum of King's College gave Dr. Farre the first clue to the true nature of these substances. The preparation is entitled, "False Membrane from the Uterus." Like the former example, it consists of a sheath of dense opaque epithelium, but the outer surface, instead of being smooth, is indented everywhere, so as to form numerous pits and depressions, running in oblique lines and exactly representing the course of the vaginal rugæ. When the preparation is laid open, and viewed from within, the furrows upon the reverse surface are seen to be converted into rugæ, having the ordinary arrangement of the columnæ rugarum upon the inner surface of the vagina. This specimen has more of the cylindriciform figure than the former one, and at its upper end is a depression corresponding with the cervix uteri.

The chief differences between this and the former specimen are, that the cast is here evidently that of a narrower and more tubular canal, and exhibits the rugæ which are wanting in the former; differences which no doubt depend upon the circumstance that the one is the cast of the vagina from an unmarried, and the other from a married person, in whom the surface of the vagina had become smooth by unfolding and obliteration of the rugæ.

A third example presented to Dr. Farre about eighteen months ago, by Mr. Henry Willington, of Brompton, has completely removed all doubts as to the true nature and source of these substances. As the history of this case is important, the author gives it in Mr. Willington's words:—

"The 'mole' was passed by a married lady, at a menstrual period. She has borne three children; the youngest $4\frac{1}{2}$ years old. She was, when I first was called to attend her, the subject of severe pain, with sickness, at the menstrual periods, for which no relief had been afforded, and lately only, 'say four months before the passage of the mole,' she asked my aid. A few days previously to the menstrual period immediately before the one when the 'mole' was passed, she consulted me for a fulness at the anus, and great uneasiness in sitting down; accompanied with a peculiar movement of crawling in the vagina, 'up in her inside,' to use her own words. The sensation was intolerable, only relieved by an injection of Goulard water. The relief was complete for some hours. Not much notice was taken of this, until the bearing down and peculiar sensation came on again at the next menstrual period, and was described as a 'peculiarly crawling sensation.' An hour after I left the patient the proper menstrual discharge came on, and the mole was found in the linen, and was felt to pass the vagina. There was no hemorrhage, nor increase of the flux, nor anything else that followed; nor in the three subsequent periods. The painful character of the menstruation is now much altered, and no drugs are now taken for it."

This specimen is in some respects more interesting than either of the two former. Its surface is smooth and shining like the first, and has the same

dense, white, parchment appearance. It possesses the cylindric form character of the second specimen, and at the same time exhibits at its upper extremity, in a marked manner, that peculiar crescentic border, perfectly destitute of any aperture at the apparent seat of the Fallopian tube (if this were a cast of the uterus), which was so puzzling a feature in the first specimen. There is here also, as in the other examples, an entire absence of the cribriform markings, and soft fleshy texture characteristic of ordinary dysmenorrhæal membranes. Like the other specimens, this cast consists of nothing but tessellated epithelium.

But the most important and interesting feature is observed in the upper part of this specimen. Here is seen a cup-like depression, having in its centre a transverse cleft, exactly corresponding in size and position with the two lips of the cervix, separated by the os uteri. So that in this case, not only the entire epithelial lining of the vagina, but that portion of epithelium also which covers the part of the cervix uteri that projects into the vagina, commonly termed the vaginal portion, has been exfoliated and expelled in one mass.

It is also interesting to observe that this process of desquamation has not in some of these cases been limited to a single act of exfoliation, but has been evidently repeated at intervals; for in two of the instances here given distinct traces of a second set of membranes were found inclosed within the first; and this fact illustrates, in a remarkable manner, the statement made in the history of the last case, namely, that the "peculiar crawling sensation" experienced in the first attack, which was relieved by vaginal injections, came on again at the next menstrual period, when the two casts were expelled, one contained within the other.

The specimens here described are instructive in another and different point of view, as displaying the real form of the vagina, when in its ordinary state of vacuity and collapse. Being actual casts of that canal, they may help to correct the conventional notions of its form, which the ordinary representations in obstetric and other works are apt to give. For the vagina is not in its normal state an intestiniform tube of four or five inches in length, which is probably the general notion of it, although, from its great elasticity and capability of both elongation and lateral distension, it may be made to take various forms, so that it adapts itself alike to the ordinary tubular speculum, and to almost any form of pessary, whether globular, oval, or ellipsoidal. In spirit preparations, also, as found in anatomical museums, an unnatural form is often given to the tube by distension of it before mounting: but if the vagina is examined *in situ*, just as Kohlrausch has represented it in his admirable sectional view of the female pelvis and its contents, of their natural size, it will be found to be a short flattened canal, the anterior and posterior walls of which are in mutual contact; measured along the anterior wall from the median tubercle of the vaginal orifice to the margin of the anterior lip of the cervix uteri, it commonly does not exceed *two*, or, at the utmost, *two and a half inches*, while the length of the posterior wall, from the hymen, or the entrance of the canal, to the extremity of the fornix, where the peculiar crescentic fold occurs, of which I have just given a description, does not ordinarily exceed *three inches*. The width ranges from one inch to an inch and a quarter, the broadest part being at the upper recess or fornix. The upper wall is shorter than the lower or posterior one, because the cervix uteri is let into it in a peculiar manner, close to its extremity, exactly in the position shown in the epithelial cast.

Dr. Farre believes that a knowledge of the several conditions under which exfoliation of the vaginal epithelium occurs, will be found to have an important practical bearing upon many of these abnormal conditions, not only of the vagina, but also of the cervix and os uteri, which so commonly fall under the notice of practitioners, and are accompanied often by so much local and constitutional irritation and disturbance.

The vagina deprived of its epithelium may be compared to the red and raw tongue of a person suffering from gastric and intestinal irritation. And it is probable that the extreme sensitiveness of the vaginal mucous membrane, which is so prominent and distressing a feature in erythematous conditions of

this canal, is as much dependent upon an imperfect covering of the papillæ, occasioned by loss of their external epithelium, as it is upon a direct heightening of the sensibility of these structures.

ART. 164.—*On the use of gentian tents in partial occlusion of the Cervix Uteri.*
By Dr. AVELING, of Sheffield.

(*Medical Times and Gazette*, June 26, 1858.)

The plan of treatment which Dr. Aveling proposes is this: "A piece of gentian root is easily obtained, and any one possessing a penknife can manufacture it into a tent of the required size. It may readily be introduced by the aid of a pair of common dressing forceps, without using the speculum. A piece of string should be tied to its vaginal extremity, for the purpose of removing it after it is expanded. In less than four-and-twenty hours the tent, by the absorption of the fluid with which it is in contact, will have dilated the canal as far as it is able. It may then be withdrawn, and another introduced of a larger size if necessary. In treating these cases, it must be remembered that the seat of stricture may be nearly two inches higher up than the os tincæ. The tents should therefore be two inches and a half long, at least, so as to insure their penetrating the os internum. Dr. Aveling has been struck with these tents coming out marked deeply by the strictures. In one case, in which the stricture had been caused by the application of powerful caustics, the tent appeared as if it had been tightly constricted by a piece of fine cord. The discharge during the presence of the tent is, of course, of a brown color. Injections of warm water should be frequently used.

"Should there be a tendency in the strictures, after they have been dilated, again to contract, one of Professor Simpson's stem pessaries should be worn.

"The gentian tent is cheap, simple, and efficacious. No other requirements can be sought for in an instrument."

ART. 165.—*On the beneficial effects of Pregnancy and Rest in the recumbent position upon Retroversion and Prolapsus of the Womb.* By the late M. BRACHET, of Lyons.

(*Gaz. Méd. de Lyons*, and *Gaz. Méd. de Paris*, May 29, 1858.)

M. Brachet relates three cases in illustration of this plan:—

CASE 1.—The womb of this patient became retroverted after her fourth confinement, and for thirteen years this complaint had rendered her a complete invalid. All the medical resources of Lyons and Paris had been tried without avail. In 1847 she once more became pregnant, and in due time was delivered without any difficulty or accident, after which she was ordered by M. Brachet to remain in bed for forty days. Fifteen days after her confinement she was ordered, in addition, to use injections of decoction of oak bark, and to introduce in the interval small portions of sponge smeared with an ointment containing tannin. At the end of the forty days the patient was able to get up without the return of her old symptoms, and, since this time, although by no means leading an idle life, she has continued well.

CASE 2.—The patient became afflicted with complete prolapse of the womb after her third confinement, and for two years the ordinary means had failed to produce any relief. Becoming pregnant again, M. Brachet advised her to remain in bed for forty days after her confinement, and with the same result as in the last case. This was in 1851. Since this time, moreover, she has had another child without any return of her former infirmity.

CASE 3.—This patient became afflicted with prolapse of the uterus after her fourth confinement, and for some time she wore a pessary. Again she became pregnant, and her delivery took place in 1855. Forty days in bed after this event, as in the two former cases, was productive of a complete cure.

ART. 166.—*Inversion of the Uterus reduced after six months.*

By Dr. WHITE, Professor of Medicine, &c., in the University of Buffalo.

(American Journal of Medical Science, July, 1868.)

CASE.—Mrs. —, æt. 30, was taken in labor, at the full term, for the second time. This labor was natural to the conclusion of the second stage, when she gave birth to a large male child. Placenta adherent, but removed at the expiration of about thirty minutes, and its delivery followed by copious flowing, severe pain, and faintings. The prostration was so great as to require the constant use of stimulants during the succeeding forty-eight hours, and for three weeks she continued extremely weak and faint. At about this time she took an aloetic cathartic, which occasioned violent efforts at stool, accompanied by pains resembling those of labor. Profuse hemorrhage followed these straining efforts, and a large pear-shaped tumor made its appearance through the os externum. The neck or smaller extremity of this body was at the vulva, and the larger extremity down between her thighs. By the assistance of her husband, she was enabled to return this tumor within the vulva, when a messenger was despatched for Dr. Batten. Dr. Batten, upon his arrival, introduced his hand into the vagina and carried the uterus high up into the pelvis, and resorted to astringents and cold for the purpose of arresting the flow of blood, which continued profuse and difficult to control. The prostration being at this time very great, the horizontal posture was enjoined, stimulants and tonics given, and the bowels moved by enema.

During the succeeding three months she had occasional hemorrhages, which were severe, with constant discharge of muco-sanguinolent matter. Two or three times during this period she so far improved as to walk about her room, and partially supervise her domestic affairs, though looking very pale and being very feeble. About the middle of January she had another severe attack of hemorrhage, the tumor again presented externally, and was again returned as before; that is, pushed back within the vulva. Dr. Batten again visited her, and prescribed such remedies as seemed necessary to control the flowing. Since about the 1st of February she has been compelled, from the debility consequent upon the exhausting sanguinolent and leucorrhœal discharges, to preserve the recumbent posture. Lactation, doubtless, added to the exhaustion, and being confined to her bed she had little appetite, the stomach was irritable, and the bowels costive. Ever since the patient took the aloetic cathartic and the tumor made its first appearance between the thighs, she has been aware of the existence of something unnatural in the vagina. This body has occasionally made its appearance externally, requiring the assistance of her husband to replace it, and she has had frequent attacks of a "straining sensation" described as accompanying its first complete descent. She has suffered greatly from all the symptoms arising from exhaustion and sympathy with the uterine irritation necessarily developed by its malposition. The pulse now numbers 130; she is blanched or wax-colored, and grows dizzy and faint when raised to the semi-recumbent posture, and cannot be moved without producing a sense of prostration. It should have been stated, that on the 25th of February Dr. Robinson, of Hornellsville, and Dr. Reynale, of Downsville, visited the patient in consultation with Dr. Batten, when inversion of the uterus was diagnosed, and measures were resorted to calculated to ameliorate her condition.

Upon making a careful examination (nearly twenty-five weeks having now elapsed since confinement), the fundus of the uterus is found just within the os externum, and about one inch and three-fourths in its transverse diameter, and scarcely exceeding an inch in its antero-posterior diameter. The body and neck of the organ occupy the vagina, and the neck is not more than one inch in diameter, and feeling like the pedicle of a polypus. The inversion is recognized as complete, and the organ scarcely, if at all, larger than when in its natural position six months after delivery. Introducing a large cylindrical speculum into the vagina, the fundus of the uterus passes readily into its cavity, thus demonstrating the complete involution of the uterus, and bringing distinctly into view the rough mucous membrane of its now outer covering.

which bleeds upon the slightest touch with the finger or sound. It is seen to be covered with mucopurulent matter also, and not susceptible of indentation by pressure with the point of the sound.

The bowels having been freely moved by an enema, I proceeded to the operation of reduction, in the presence of Drs. Robinson, Reynale, Batten, Dimick, and Mr. J. W. Robinson, medical student. The patient was placed for the operation, as before, upon an elevated, firm bed, with the hips brought quite to its edge, the knees separated, the feet resting in the laps of Drs. Reynale and Robinson, with directions to each to support a knee and hand of the patient, and prevent her from moving about. Dr. Batten brought the patient moderately under the influence of chloroform, which was continued throughout the operation, whilst I placed myself upon my knees, between the limbs of the patient, her pelvis being at a convenient elevation for manipulation. I introduced my right hand completely into the vagina, and firmly grasped the entire body and neck of the uterus. It may here be remarked, that the parts were so firmly contracted as to render the introduction of the hand difficult. At the same time that the entire uterine tumor was grasped by the right hand, the large rectum bougie described in the first operation was carried up, and all received into its palm, and held firmly in contact with the fundus of the uterus, the hand being sufficiently large to receive both, and keep them in apposition. Continuous, gentle pressure, was now made upon the external extremity of the bougie with the left hand, whilst the right compressed the uterine tumor, and kept the upper extremity of the instrument directly upon the fundus, and with the dorsum of the hand in the concavity of the sacrum, directed the force in the axis of the pelvic cavity, putting the vagina completely upon the stretch. This pressure was exerted, and this position unintermittingly maintained, although the force was not to such a degree as to endanger laceration of the utero-vaginal connection, until my strength was nearly exhausted from continuity of effort. At length, and when about to relinquish the task, the uterine tumor began to shorten at its neck, and the mouth of the organ to push upon the upper surface of the hand. No depression or dimpling of the fundus was at any time perceptible. Ascending more and more rapidly as the neck diminished in length, the fundus finally passed out of the hand, and was easily pushed by the bougie through the mouth and neck of the organ up to its proper position.

In order to verify the restoration, Simpson's sound was introduced alongside of the bougie, and was found to enter a little more than two inches and a half above the os, which could now be distinctly felt. The large speculum, already referred to, was now slipped up around the bougie, when the os was brought distinctly into view, surrounding also the bougie. The sound was again carried through the os to the fundus, through the speculum, and all the medical gentlemen present saw that it passed easily beyond the mouth to the shoulder of the sound, and could not, without force, be carried further. Thus was demonstrated not only the reduction of the uterus, but that the organ was accurately measured, and found scarcely, if at all, enlarged. The speculum and sound were now withdrawn, the patient carefully removed to the bed, and the bougie retained in place by the hand, to prevent reinversion. Meanwhile, stimulants were given to sustain the patient, and ergot in such doses as were deemed likely to excite the tonic contraction of the uterus. The patient soon recovered from the effects of the chloroform, and expressed herself as feeling quite as comfortable as before the operation. The patient suffered but little during the operation. The discharge of blood was slight, and when the effects of the chloroform had passed off, and she had taken a little brandy and water, she expressed herself as feeling comfortable. Pulse not sensibly changed in quality, and numbering the same as before the operation.

Drs. Robinson and Batten remained with the patient during the succeeding night, alternately maintaining the bougie in the uterus, supporting it gently, and rendering such other attention as the patient required. Continuing the pressure upon the fundus of the uterus was perhaps unnecessary, but it was thought safe not to withdraw the bougie until next day.

March 13th.—Dr. Robinson writes: "The patient is quite comfortable;

pulse 108. Free from pain. Withdrew the bougie this morning, and found the os uteri embracing it pretty firmly."

Tonics, with nutritious diet, were continued, and quietude in the horizontal position enjoined.

On the 15th, he writes: "The patient is quite comfortable this morning. Made a digital examination, and found the uterus perfectly *in situ*, and mouth well contracted. Has some appetite. Pulse 100."

March 23d, he again writes: "She is improving; has been much annoyed by neuralgia and sickness of stomach, but both are giving way, as is the leucorrhœal discharge. The treatment has been sustaining (porter, wine, quinine, iron, &c.), with nutritious diet." In conclusion, Dr. Robinson adds: "She will get well, and I feel gratified in the success of the effort of restoration, not only on account of the patient being relieved of a loathsome malady, but also that I have been instrumental in contributing to the professional reputation of one for whom I feel a deep friendship, as your success in this case will relieve obstetrical surgery from the opprobrium which has hitherto been attached to it in cases of chronic inversion of the uterus."

In reply to a letter of inquiry from me, Dr. Robinson writes, April 22d: "I visited her yesterday, and found her very cheerful, and able to sit at the table and take tea with us. Her final recovery is now beyond all doubt. In short, the operation has been as successful as its most sanguine friends could desire. Her convalescence has been protracted; slow, perhaps, but when we take into account the great prostration from the long continuance of the malady, and the exhausting hemorrhages and leucorrhœal discharges to which she had been subjected, the only wonder is that she recovers at all."

ART. 167.—*On dilatation of the Female Urethra by fluid pressure.*
By MR. T. SPENCER WELLS, Surgeon to the Samaritan Hospital, &c.

(*Medical Times and Gazette*, July 24, 1858.)

"Towards the end of last year," says Mr. Spencer Wells, "Mr. Henry Thompson showed me a modification of Dr. Arnott's instrument which he had contrived for the purpose of compressing the prostate by dilating the prostatic portion of the urethra. I at once saw that a very slight modification of this instrument was exactly what was wanted for the female urethra; but it was not until last month that I had need of such an instrument. I was then consulted by a lady in whose bladder I detected a stone. In an ordinary case of the kind I should have crushed it at once, but in this case there was so much irritability of bladder, the urine was so loaded with mucus and so soon became ammoniacal, that I was doubtful whether it would not be wiser to run the risk of incontinence after dilatation, than increase the irritability of the bladder by the use of the lithotrite, and the escape of the fragments of stone. I therefore advised a consultation with Sir Benjamin Brodie, and acted on his advice, which was to inject the bladder with water daily for a few days, and then break the stone, being prepared at any time to dilate the urethra and empty the bladder, should any undue irritation come on. So far all has gone on well. The irritation diminished directly the stone was broken, and very little is left of it after three sittings.

"But the instrument I had prepared for this case by Mr. Coxeter I have had an opportunity of trying in another. The instrument is shown in the accompanying woodcut, the dark line representing the instrument before, and the dotted lines after dilatation.

"It consists of a female catheter, a piece of India-rubber tubing fitting closely over the catheter, an elastic tube furnished with a stop-cock, and a syringe. On filling the syringe with water, fixing it to the end of the elastic tube, and injecting the water from the syringe into the catheter, the water is forced through small openings near the end of the catheter, and distends the India-rubber tubing which covers it. When the syringe is emptied the stop-cock can be turned, and the syringe refilled. The India-rubber dilates, as shown by the dotted lines, at first in a globular form, afterwards in a more oblong direction, especially if any lateral pressure be made on it. In this way

the urethra may be very gradually dilated with an equal pressure in every direction until its diameter exceeds an inch. The length of the elastic tube permits of the use of the instrument beneath the bedclothes without the least exposure of the patient.



"It is hardly necessary to describe the mode of using it, but I may say the covered catheter is oiled or covered with some greasy substance. The only thing in common use which appears to spoil the India-rubber is turpentine. When oiled it is introduced as an ordinary catheter, and so held that the centre of the distending portion is kept just within the meatus. There is some little tendency in the bladder to force the instrument outwards, but slight gentle pressure easily overcomes this. After one syringeful of water has been gradually injected, a second may be used, and a third if very great dilation be required. On ceasing the injection the distended tube is at first held very tightly—at least it was in the only case I have had—but after a minute or two it may be moved and easily withdrawn. The fore-finger, oiled, can then be inserted at once into the bladder, and followed by any instrument of equal size.

"The effect was admirable in my patient. There were reasons against giving chloroform or ether, so that I was able to judge of the rapidity and painlessness of the process as compared with the sponge-tent. There was some pain, but it was by no means excessive, and the dilatation did not occupy more than ten minutes, yet I was able to introduce a pair of bullet forceps, and remove an oblong foreign body with great ease, and after the third day the retentive power of the bladder has been perfect.

"I intend to take the first opportunity that occurs in the dissecting room of testing the power of a similar instrument on the male urethra, after opening it as for lithotomy. It may not be generally known that lithotomy—or rather lithectasy—on the horse is performed on the principle of dilating the prostatic urethra. The staff is passed along the urethra, an opening is made into its membranous portion from the perinaeum, and an empty bladder is then carried along the groove of the staff into the horse's bladder. The staff is withdrawn, and the prostatic urethra dilated by injecting the introduced bladder. Sufficient dilation can be obtained in this way for the removal of very large stones; and I think all that we know of lithectasy in the human male leads to the conclusion that we only want a more perfect means of dilating the prostatic urethra to do away with the most formidable dangers of lithotomy. Some such instrument as that which has answered so well for the female urethra will, I trust, prove useful in this way."

ART. 168.—*On the successful treatment of Vesico-Vaginal Fistula.*

By MR. J. BAKER BROWN.

(Pamphlet, 1858.)

In this memoir, which was read before the British Medical Association at Edinburgh, on the 31st of July, 1858, Mr. Brown ————— result of his ample

experience in the treatment of vesico-vaginal fistula. Since our last notice of Mr. Brown's labors (*v. 'Abstract,' XXVII, 187*) this gentleman has had seven cases, all treated by Dr. Bozeman's method, and all successfully. These cases call for little remark. They prove, conclusively, that this intractable lesion is now quite under our control, and that no case need be rejected as incurable. Cases 1, 2, 4, 5, 7, 9, and 10, were cured at the first operation; cases 6, 8, and 11, at the second; case 3 was operated upon nine times before the cure was accomplished—a fact which gives us great encouragement to persevere, even in the most difficult and obstinate cases.

A remark is added, in conclusion, which assigns the credit of having first used metal sutures to Mr. Gossett, of London, and of having perfected the operation to Dr. Bozeman.

"The evening previous to my reading these cases before the British Medical Association at Edinburgh," says Mr. Brown, "my friend, Professor Simpson, informed me that Mr. Gossett, of the City of London, had published, in the '*Lancet*' for 1834, the history of a case of vesico-vaginal fistula which he had cured by using golden sutures, and that he also recommended their use in many other surgical cases. The merit of being the first to apply metallic sutures to these cases is therefore undoubtedly due to Mr. Gossett, of London, and not to Professor Sims, of New York. I must further add, however, that I attribute the rapid success of these operations to the use of the button, as first suggested by Dr. Bozeman, and that to him, therefore, is fairly due the merit of rendering this most troublesome lesion comparatively easy of cure."

ART. 169.—*An analysis of 61 cases of Ovariectomy.*
By Dr. GUSTAV SIMON.

(*Scanzoni, Beitrage zur Geburtsk.; and New York Journal of Med., July, 1858.*)

This review of operations performed by German surgeons has been prepared with a great deal of care and judgment, in order to establish the true value of the operation. It contains not only those cases which have been published previously, but besides, 23 cases are added which were communicated to the author by private letters, mostly from the operators themselves. In reporting each case, he does not confine himself to short notices, but gives a history of every one of them. The results of the operations are divided under three heads, viz., 1. Operations followed by a radical cure. 2. Operations resulting in death. 3. Operations from which the patients recovered at first, the ultimate good result of which was only temporary, dubious, or of no consequence at all. In the latter division are counted those cases where the operation had to be given up in consequence of too strong adhesions or a wrong diagnosis, or where the patients died at a later period from the operation, or from the original disease.

In all the former statistics (American, French, English) the cases coming under No. 3 are reported among the successful operations. Dr. Simon's analysis should therefore claim the undivided attention of the profession. Moreover, as most of the operations were performed at a recent date and by eminent surgeons, good diagnosis, scientific performance of the operation, and skilful after-treatment, were commonly secured.

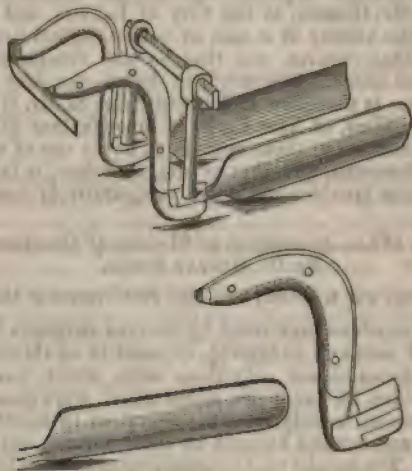
Results: Of 61 patients operated upon, 44 died immediately after the operation, or $72\frac{3}{4}$ per cent. In 5 patients the operation was of transient or no benefit at all, and only 12 were radically cured, or $19\frac{1}{2}$ per cent. These results are by far less favorable than those of former statistics, and, from a comparison, ovariectomy is more dangerous than the Cæsarean section, because only 63 per cent. died in consequence of the latter, according to Dr. Kaiser's statistics, or about $\frac{2}{3}$ per cent., according to some other authors.

ART. 170.—*A new Speculum Vaginæ.* By Dr. ROBERT NELSON.

(*Lancet, Feb. 28, 1858.*)

The instrument which is represented in the accompanying cut consists of a *potence*, movable handles, and removable blades; it is used with the handle upward, and not downward, as that of Madame Boivin.

The left pillar of the potence is a fixture to the upper bar, flat on each side, and a quick thread, chased on the upper and lower side, to which a milled nut is adapted. The right pillar fits to, and rides easily on, the bar, so that by a few turns of the nut the pillars can be separated to any extent of distension that the vulva is capable of; after which, by pressing the horns of the handle together, the uterine ends of the blades are made to expand to the full extent of the fundus of the vagina, rendering it tense, if needed for cutting. The vulvar extremity admits of insinuating the finger and instrument during an operation, and their free movement in any direction, deeply as to the os tincæ, or as superficially as to the nearest part of the vagina. There is room for the assistant to seize with a forceps and hold any part without embarrassing the operator by the presence of his hand, one working between the blades above, and the other below.



The best shape for the bladder is quite flat, with the edges slightly bent inward. It must be made of steel, very thin, and electro-plated. Spare blades of various sizes, breadth or length, and of any shape, to suit a particular case, may be added.

ART. 171.—*A Case of premature Puberty.* By Mr. R. B. SMART, of Manchester.

(*Proc. of Roy. Med. and Chir. Soc.*, June 22, 1858.)

CASE.—Mary D—, a girl born in Manchester in January, 1853, had an appearance of hair on the pubes, followed by a menstrual discharge, at the age of three years and six months. None of the assigned exciting causes of early puberty could be traced. She seemed to be generally out of health before the first occurrence of the catamenia, but has since become strong and well, the menses recurring with perfect regularity up to the time of observation. She is now (May, 1857) three feet seven inches in height, and weighs fifty-two pounds. Her general appearance is wonderfully like that of an adult female of short stature; her bust is full and womanly; the breasts large and prominent, with the characteristic glandular feel on manipulation; the nipples are well developed, and the veins of the breast much marked. Rather from the abundance of fat over all the body than from the size of the bones, she is wider across the hips than other children; she has a distinct forward curve in the lumbar spine; the hair on the pubes is light brown, and about an inch in length; the external parts of generation have very much the conformation of an adult. In intellect the child is backward; her disposition is lively, but obstinate. There is no positive indication of sexual propensities.

The case has a table of measurements, in which the proportions of this child are contrasted with those of her sister, who is a year and eight months older than herself. This sister is shorter, and weighs nearly a stone less than the subject of the paper, and many of the measurements are in excess in the younger girl, especially the girth of the body and limbs. Photographic portraits of the case represent at a glance the chief peculiarities. The writer of the paper has given a table of reference to other similar cases published in England, and makes some comments on the points which are of interest to the physiologist.

(C) CONCERNING THE DISEASES OF CHILDREN.

ART. 172.—*Malaroid Remittent Fever in Children.* By Dr. C. HANDFIELD JONES, Physician to St. Mary's Hospital.

(*Brit. Med. Journal*, July 31, 1853.)

There is a form of febrile disorder occasionally met with in children which does not correspond to the description given by our best authorities of remittent fever, and is further differentiated by the effect of remedies.

A child of two to six years old (I sketch the limits, of which I have notes) has been gradually losing health for several days or weeks; it is languid, drooping, emaciating, and, without appetite, more or less thirsty. The night is the time of most disorder; there is considerable cerebral disturbance, quite amounting to delirium in some cases, in others marked by "horrible dreams," talking in sleep, and great restlessness. In some there is at night also copious perspiration. The child may be apyretic during the day, but becomes feverish at night. The bowels may be costive or much relaxed. The tongue is clean in some, in others coated. In these cases I have found quinine of decided curative efficacy, improvement taking place under its use in a way that could not be referred to the unaided *vis medicatrix*. A child of five years old has taken eight, and another of four years has taken six grains daily, with great benefit. Cod-liver oil and steel wine may sometimes be given also with advantage.

I am much inclined to consider these fevers as of malarious character, using the term in a rather wide sense, as applicable not only to marsh miasmata, but to other ill-defined poisons, which may be generated even in cities. I do not think the disease in question is typhoid fever; it does not appear to tend to a spontaneous termination, or to have a definite period. Its pathological affinities, as far as I can judge, are in the direction of neuralgia and dysentery or diarrhœa.

ART. 173.—*On Vesicular Emphysema of the Lungs in early Childhood.*

By Dr. GRAILY HEWITT, Physician to the Samaritan Free Hospital.

(*Pamphlet*, Churchill, 1858.)

Vesicular emphysema of the lungs, as occurring in the adult, has received a large share of the attention of pathologists; and whatever may be said of our knowledge respecting the mode of its production and of its origin, we are at all events well acquainted with many of its effects, and in possession of means enabling us to recognize its presence. Not so, however, in the case of children. Emphysema is chiefly known in what may be termed its mature state, or last stage—that in which the air-cells have attained a large size. In children we have the disease presented to us in its earliest condition—that in which, consequently, it is most advantageous to study it. No morbid lesion of the lungs is indeed more common in early life than emphysema—a fact which, for many reasons, deserves to be more widely known than appears to be the case at present. The reason that emphysema in childhood is so little alluded to by authors, and so little practically taken into consideration by practitioners, would seem to be, that at this period of life the enlargement presented by the air-cells is, comparatively speaking, not great in degree, so far as the individual cells are

concerned; and that, unless their size be specially regarded, the slight enlargement is liable to escape observation after death.

That emphysema of the lungs most undoubtedly plays a very important part in most of the diseases of the respiratory organs in children, that it adds no little to the difficulties encountered by both patient and physician in combating and overcoming their exceedingly fatal tendency, and that it has probably no small influence in hastening the fatal event in some diseases, in which its existence is hardly suspected—these are circumstances to which Dr. Hewitt desires to call particular attention. In cases where recovery from these affections takes place, the lungs are often left permanently injured. The adult, tormented by chronic bronchitis and emphysema, is not rarely found, on inquiry, to have been the subject of respiratory anomalies of various kinds from an early period of life; the disease of which he was supposed to have been cured when in the nurse's arms has left behind it a malady which, slowly developing and increasing with advancing years, has, by impairing, though perhaps slightly, the physical activity of the individual, exercised no slight influence on the whole tone of his life and character, and paved the way to other and serious organic diseases.

"The chief generalization," says Dr. Hewitt, "which the facts in my possession warrant me in making is, that although no part of the lung-surface seems absolutely free from the liability to be affected with emphysema, yet that it is rare to meet with it in its primary and simplest form at the extreme borders of the lobes—at those parts, in fact, which are the most distant from the bronchi. These latter situations are, indeed, in children, the particular seat of apneumotosis—a condition which is in its nature the very opposite of emphysema.

"The most usual form in which emphysema occurs in the lungs of children is the following: slightly elevated whitish patches or islets are seen scattered over the surface of the lobes, abruptly separated from the adjacent lobules, which are either healthy or affected with apneumotosis, and the air-cells themselves variously enlarged; this intermixture of emphysema and apneumotosis gives the surface of the lung an uneven, pitted appearance—very characteristic. The emphysema is not often confined to one lobe. To the casual observer, the more evident pathological change in by far the majority of these cases of emphysema—a pathological change with which the emphysema appears to be inseparably connected—is the collapse of certain of the lobules of the lung, produced by withdrawal of the gaseous contents of the air-vesicles. So intimate, indeed, is the connection between the two lesions—emphysema and apneumotosis—that a description of the one necessarily includes a reference to the other. I have never seen apneumotosis unaccompanied by emphysema; and if large portions of the surface of the lobe present the one lesion, it is the rule that adjacent portions of the surface are affected with the other. Solidification of the lung-tissue, due to the presence of tubercle or true pneumonic inflammation, appears, though in a less degree and less constantly than is the case with apneumotosis, to entail with it an emphysematous change in the vesicles of neighboring lobules.

"It has been already remarked, that the individual air-cells are not found greatly enlarged in size. The average measurement observed was about one-fiftieth of an inch in diameter, this being about twice the diameter of the healthy air-cells—according, at least, to the standard I have been induced to adopt. Instances were not rare in which the enlargement reached one-twentieth or even one tenth of an inch; but in these cases, only two or three cells out of a series of ten or twenty presented emphysema in this degree."

Speaking of the causes of emphysema, Dr. Hewitt says:—

"Whatever reduces the bulk of the lung at any one point, as a secondary consequence produces emphysema. Keeping this principle in view, it is easy to explain the appearances presented to us in the lungs of young children dying of lung-affections. It will be profitable to consider, in the next place, the comparative frequency with which the various bronchitic and other affections incidental to young children become complicated by emphysema, and to assign to

the latter condition its due importance as the pathological cause of many of the symptoms observable during life.

"Amongst the first, chronologically speaking, of the affections of the lungs to which infants are liable, and which are concerned in the production of emphysema, is atelectasis, or non-aëration of certain pulmonary lobules after birth. Children in whom large portions of the lungs do not expand after birth rarely survive many days; but when a less degree of the disease is present, life may be prolonged for a variable period. In this latter class of cases, when death takes place, emphysema is always found. Under these circumstances, however, the enlargement of the air-cells is not so great in degree as that produced by other pathological conditions; the walls of the thorax are less resistant than at a later period of childhood, and more readily adapt themselves to the shape and size of the lung. In cases which ultimately recover, the lung often remains permanently injured; the portions of lung at first healthy, and subsequently unduly distended, owing to the presence of atelectasis, do not regain their natural dimension, and the child is left to breathe habitually under disadvantageous circumstances, its *respiratory surface* having been diminished in extent. The puny child grows into the stunted adult, the developmental energy of the various organs being thus early impaired and weakened. It is a question whether nature is capable of remedying the deficiency in the extent of respiratory surface, by producing new air-cells in the interstices of the old ones. A certain lobule, we will suppose, never expands, is atelectatic from birth. Pathology teaches us that this lobule diminishes in bulk, and is probably absorbed. The surrounding lung-tissue, which at birth was normally expanded, takes the place in the thorax of the non-expanded lobule. It appears probable, judging from pathological data, that the space is filled up by the abnormal expansion of the air-cells already existing, rather than that there is a new creation of air-cells. The reason that emphysema produced by atelectasis is slight in degree is, that the shape and size of the thorax is from the first regulated by the degree of expansion of the lung-tissue.

"During the first two years of infant life, bronchitic affections are exceedingly frequent, and assume an importance which can hardly be exaggerated. Why do these diseases so frequently kill? How is it that the mortality from these affections is of a degree absolutely startling to those accustomed to deal with the statistics of infantile disease? These questions must be interesting to all. There are few diseases which suddenly, and by the introduction of one lesion alone, bring about a fatal result. The more common circumstances is, that the primary affection produces a second, the second a third, and so on.

"Nature interposes, sometimes effectually, and the exaggerated functional activity of one part of an organ is made to compensate for the diminished or arrested activity of another. This compensation, successful for the moment in affording relief, has, however, often the effect of deteriorating the previously sound and healthy, and otherwise unaffected portion of the organ attacked.

"Now, the series of changes found in the lungs of children dying from bronchitic affections illustrate in a very forcible and apposite manner the truth of the generalization here enunciated. The first effect of bronchitis or catarrh in an infant is obstruction to the entry of air. This obstruction increasing, certain portions of the lung become apneumatic—return to the quasi-fœtal state, as in the case of atelectasis just alluded to, but in a greater degree. The adjoining healthy lobules take on a compensating action; but by so doing, themselves become diseased—in fact, emphysematous. The act of inspiration forces the lungs to fill out the cavity of the thorax; but there being an impediment to the entry of air in the bronchi leading to the apneumatic lobules, it naturally finds its way into those not so obstructed. The emphysema thus produced is often extreme as regards the amount of lung-surface implicated; but, as before remarked, not extraordinary in degree. The peculiar character of the dyspnoea of young children suffering from bronchitis is to be explained in great part by an attentive consideration of the altered size and relation of the air-cells here alluded to. Observe an infant who has for a few days been the subject of bronchitis. The upper part of the thorax hardly moves at all during inspira-

tion; the lower part of the thorax below the nipple, at the same time, will be seen to be actually retracted. One part of the lung receives no air at all; another (more commonly the upper lobe, or a portion of it) receives air, but a less quantity than usual, owing to the emphysematous condition there existing."

With respect to the diagnosis, Hewitt says:—

"The movements of the chest are markedly influenced by the presence of emphysema. Emphysema, of what may be called *acute* form, developing itself in the lungs of infants or young children during an attack of bronchitis, most commonly attacks the upper lobes of the lungs. Here the want of expansion beneath the clavicles, the greater resonance on percussion, and the feeble respiratory murmur, are diagnostic of the presence of the lesion. Dr. Jenner states that he has observed a falling in or subsidence of the supra-clavicular region during inspiration, in cases where the apices are affected; and my own observations enable me to confirm this statement. Below the clavicles the emphysema may most surely be recognized; for in this situation the lung is most liable to be *extensively* affected. At other situations, the mixture of emphysema with apneumotosis renders the diagnosis more difficult, the results offered by percussion are less valuable, and the auscultatory signs are less significant.

"An intensification of the natural respiratory murmur is not heard over parts of the lung which are truly emphysematous; rather coarse rhonchi may be heard masking more or less completely the natural respiratory sound; but these rhonchi themselves are not of much value as tests of the presence or absence of emphysema. The presence, at any situation, of signs indicative of apneumotosis, such as dulness, finish rhonchus or complete absence of respiratory murmur, is almost or quite sufficient to warrant the conclusion that emphysema is also present, and in such cases the signs of emphysema have only to be looked for, to be at once made out.

"Inasmuch as emphysema is rarely unaccompanied by apneumotosis, it is a matter of difficulty, as before remarked, to define precisely the share of each in the production of the various *symptoms* observed. The dyspnoea present in bronchitis in young children is peculiar, the expiratory act occurring first, and the interval following the inspiratory act.

"When emphysema is present to a considerable degree, the 'expiratory' type of respiration is intensified; the respirations are eminently *shallow* in character, the cough is short, stifled and weak; and coincidently with these, the physical signs of emphysema at the apices, and of collapse at the lower portions of the lungs, may be satisfactorily made out. What of the symptoms and of the distress which the patient is laboring under, cannot be set down to the airless state of certain parts of the lungs, and to the obstructed condition of the air-tubes, must then be attributed to the emphysema, the emphysema affecting, let it be remembered, not limited portions of the lung's surface, but often spread over entire lobes. Orthopnoea, and great distress are, in young children, generally due rather to the presence of extensive emphysema than to those other conditions which produce difficulty of respiration in bronchitis. As the child grows older, the lungs less readily become collapsed, and less readily, for this reason, does this acute form of emphysema occur. In weakly children the sternum often projects at the same time that the chest is laterally retracted, one diameter of the chest being increased to make up for the diminution of another.

"Of the symptoms of chronic emphysema in childhood there is little to be said, the characters of the disease differing in few essential particulars from those observed at a later period of life. As in the adult, the patient is liable to frequent attacks of bronchitis, evidently dependent on the existence of the emphysematous condition of the lungs. The rapidity with which severe dyspnoea supervenes on an apparently slight attack of bronchitis is, in ordinary cases, a good test of the presence of emphysema.

"Much more might here be said in reference to other symptoms which are produced in part or altogether, by the existence of emphysema, but the general indication thus given of the part emphysema ordinarily plays in giving rise to

symptoms usually referred to other conditions, has been thought sufficient for the present purpose."

ART. 174.—*Some observations on the Dystrophia of Children.* By Dr. R. KUTNER, of Dresden.

(*Journ. für Kinderkrankh.*, April, 1858; and *Dublin Quarterly Journal of Medicine*, August, 1856.)

In our daily intercourse, and, to some extent even in the field of science, the term atrophy has undoubtedly received far too wide an application and been confounded in its signification. Considering the phenomenon of far-advanced emaciation as the essential feature, a number of morbid conditions in little children have been only too often comprised under the name atrophy, which are marked by a deep depression of nutrition; and children have been looked upon as atrophic, who, on a more accurate examination, and stricter employment of the term, would be recognized as suffering from a general dyscrasia or an organic affection. The correction of this abuse and the restoration of the word atrophy to its original more limited signification is, however, by no means so idle or unessential a matter as it may, perhaps, appear to many, but has, in addition to the greater accuracy in diagnosis to be thereby attained, also its special value in medical treatment.

The true atrophy, or—as we much more correctly denominate it—the dystrophia of children as an independent form of disease, *pædodystrophia*, *pædatrophia*, may, according to the signification of the word, necessarily comprise only that state of depressed nutrition and general exhaustion, which in little children is occasioned by the insufficient amount or the unsuitable nature of the food. This essential original dystrophy is, therefore, to be strictly distinguished from all those states of emaciation and exhaustion which, occurring as the product of morbid processes, bear a purely symptomatic, secondary character. While in the latter (*dystrophia symptomatica*) the eye of the physician must be constantly directed to the casual morbid condition, at one time a long-continued local affection, especially of the organs of digestion or respiration, at another a general dyscrasia, as tuberculosis or inherited syphilis; in the former (*dystrophia morbus*) the organization is originally, and, so far as morbid states do not accidentally concur, giving rise to complications, thoroughly normal, and suffers only from the want of the formative material so necessary to it. In the one case the physician must meet the affection by combating a morbid state; in the other, by administering suitable nourishment.

The development of genuine dystrophy is, as the organism constantly needs the access of nutritive matter, evidently possible at any time of life, but at no age is the tendency to it greater than in the earliest infancy. For, on the one hand, the delicate digestive organs of the child are by nature for a long time destined to one particular form of food, the mother's or the nurse's milk, all substitutes for which are only too apt to be insufficient; while on the other, the infantile system growing most rapidly, the more quickly and sensitively feels the want of suitable formative material. But dystrophy is exemplified not merely most frequently, but most accurately, in the young child, who, still for the most part free from products of disease, and still unaffected by exhausting bodily exertion or distracting mental affections, which, at a more advanced period of life, usually accompany a state of privation, and greatly modify its phenomena, only physically feels and exhibits the want of nourishment. For these reasons dystrophy has certainly been correctly admitted specially into the pathology of childhood, and considered as a particular affection of the earliest period of life, the time of suckling.

It is of practical importance to distinguish two species of dystrophy according to their origin, whether the latter be attributable to a simple deficiency of nourishment (*dystrophia simplex*), or whether the nature of the food is at the same time unsuited and irritating to the delicate digestive organs of the child (*dystrophia dyspeptica*). The former, of course, occurs almost only in sucklings, starving on the ill-supplied breast of the mother or the nurse; the latter, by

far the most common, is mostly the sad result of artificial feeding, which carries numberless children to the grave.*

A detailed description of the phenomena characteristic of the dystrophy of children might be superfluous to the readers of these pages: I shall, therefore, allude to only the most essential symptoms. Occupying the first place among them in a material point of view is the manifest deficiency of blood, exhibiting itself in the general paleness and in the diminished bodily heat. Hand in hand with it goes the insufficient metamorphosis of tissue, which, commencing with general relaxation and flaccidity, gradually leads to the complete disappearance of the cushion of fat, and finally gives the little sufferers an old or ape-like appearance. Among functional phenomena we have a constant craving for food, thrusting the little hands into the mouth; unceasing restlessness by day and night, which yields for only a short time to the administration of food, and at last passes into the highest degree of listless exhaustion; lastly, a very great diminution of the urine often giving rise through the acidity of the concentrated secretion, to a kind of dysuria, and a frequently torpid, solid and scanty alvine discharge, which is watery and diarrhoeal only when*catarrh of the bowel exists. This collection of symptoms presents the idea of dystrophy in its simplest form. In *dystrophia dyspeptica* we observe, of course, in addition, the phenomena of deranged digestive powers and of the collection of indigestible matters in the stomach and intestinal canal, by which these organs are brought almost into a state of chronic catarrhal irritation. Therefore, vomiting, the occasional formation of acid flatulence, and diarrhoea, erythema of the cavity of the mouth, with the development of fungi and of sores around the anus, appear as concomitant symptoms, which undergo numerous modifications in form and intensity according to the different nature of the deficiency in the nourishment. As secondary attendants on dystrophy, especially on its dyspeptic form, convulsive phenomena of all kinds may certainly occur, but they are in reality much rarer than is popularly supposed, the entire train of symptoms being only too readily attributed, not to its real cause, but to so-called inward spasms, and for these assistance is demanded. Public institutions, such as our Foundling Hospital, afford hundreds of opportunities of making observations of this kind. At one time the poor starved little ones are brought to seek relief for their constant uneasiness, their crying and their want of sleep; at another time, for their urinary affections; at another, for derangement of the bowels; but most frequently for the supposed inward spasms.

The post-mortem examinations in simple dystrophy present nothing characteristic in addition to the highest degree of deficiency of blood, as well as in general of insufficient nutrition of all the tissues. In *dystrophia dyspeptica*, on the contrary, we find traces of a catarrhal condition of the gastric and intestinal mucous membrane, with swelling and black punctation of Peyer's glands, or actual bursting and ulcerous destruction of the same. The fundus of the stomach, as well as some parts of the intestinal canal, are often found in a state of gelatinous softening, in consequence of the presence of contents which have passed into a state of acid fermentation, while the liver appears at one time anæmic, at another overloaded with dark blood, but the bile is always remarkably thin and pale. That complicating morbid conditions, frequently hastening or directly causing death, which leave their traces in the dead body, as for example pneumonia and cerebral affections, must be distinguished from pure dystrophy, is self-evident. The swelling and hardening of the mesenteric glands in atrophic patients, on which so much stress was formerly laid (as Dr. Stiebel, jun., also has shown in his treatise 'On the Condition of the Mesenteric Glands in Childhood, and their relation to the atrophy of the first year of life,' Frankfort-on-the-Main, 1854), are by no means constant, and at least in no case constitute an essential post-mortem appearance in dystrophy, often as the latter is considered and described as *tabes mesenterica*.

* It is principally poor little children, committed to nurses, who are liable to this fate. A statistical table, deduced from the reports of the Foundling Hospital, shows, that while among the children under their mothers' care, the mortality among children under two years of age did not amount to quite 19 per cent., in those under the charge of nurses it attained 29 per cent.; and was generally caused by dystrophy.

As I have already remarked in the beginning of this paper, dystrophy is among the most frequent causes of death in the first year of life, as a very considerable number of artificially fed children fall a sacrifice to it. Notwithstanding, the prognosis is not at all so unfavorable as one might at the first glance suppose, and in every case it is much better than in the symptomatic variety caused by diseases. It is truly surprising how quickly and completely such children often recover, and, indeed, even within a few weeks become so changed as not to be recognized, so soon as food adapted to their digestive organs and sufficient for their wants, has been supplied. If it is possible to transfer the suckling languishing on the empty breast of its mother, or the child wasting away on unsuitable artificial food, to a good nurse, care should be taken that if the latter appears unequal to her task, she should be exchanged for a better, the consequence of which will be the disappearance in a short time of all the symptoms arising from the insufficient supply of its wants, and the often rapid transformation of the little image of misery into the round, soft forms characteristic of infancy.

From what has been said it is evident that from the nature of the case, the treatment of dystrophy is not to be pharmaceutic, but that the entire task of the physician consists in the administration of nourishment quantitatively and qualitatively suited to the wants of the child. It is attributable only to imperfect knowledge of the affection, and of its causes, that the treatment is so often actually different. All those far-famed children's powders and syrups, with which nurses, and even physicians are so ready, to combat particular symptoms, are as unavailing as tonics, astringents, or narcotics. They are only signs of a false diagnosis, and easily contribute to aggravate the patient's state. Unfortunately, it is, however, often impossible to procure for the little sufferers the only efficacious remedy—sufficient and suitable nourishment—which mostly can be found only in a good nurse. This is particularly the case in public institutions, which, destined for the service of the poorer classes, are most frequently resorted to on the behalf of such sufferers, and yet can do nothing more than give suitable advice to the mothers or nurses. With the above view, we are in the habit of recommending, in the Dresden Foundling Hospital, for starving sucklings, the contemporaneous administration of good cow's milk, so as fully to satisfy the children, and, in those who are artificially fed, of regulating the diet as far as possible according to the principles which I have already published in my aphorisms on the feeding of little children. Medicines I give only according to special indications, as in cases where complications exist. Instead of them, I have derived great benefit, especially in dystrophia dyspeptica, from administering, three or four times a day, from eight to ten drops of Malaga, Hungary, or port wine, to the little patients; and this plan I can under such circumstances the more strongly recommend, as, by prescribing the wine in the form of a medicine, the physician will no longer appear as an idle spectator, in the eyes of relatives, so often desirous of the administration of medicine. That this small quantity cannot act as a nutrient* is evident, but it acts as a condiment to the digestive organs, and makes them more capable of digesting and assimilating the food which is supplied often in sufficient quantity, but in a state of unsuitable preparation and admixture. Thus, at least, I believe the remarkable effect of wine under the circumstances above mentioned, which has been confirmed by hundreds of cases, is to be explained. When the dystrophy is removed, wine is of course again left off, as in well-fed, plethoric children it only too easily induces an insidious cerebral affection, even though given in small but long-continued doses.

* It is well known that Kletzensky has discovered a considerable amount of lime in Malaga and Tokay wines, and that he ascribes to this fact a considerable share of their beneficial action.

ART. 175.—Galvanism in Incontinence of Urine in Children.**By Mr. SIMON, Surgeon to St. Thomas's Hospital.***(Medical Times and Gazette, Nov. 14, 1858.)*

Mr. Simon, it appears, has treated successfully some cases of incontinence of urine in children by means of galvanism, the current being passed along a catheter which has been previously introduced into the bladder. The cases were those of incontinence from simple atony, and not those arising from irritable bladder.

REPORTS
ON THE
PROGRESS OF THE MEDICAL SCIENCES.

July—December, 1858.

THE intention of the following Reports is to pass in review the principal additions to each department of Medical Science, which have been placed on record during the preceding six months. It is not contemplated that they should be confined exclusively to the notice of what is new; any fact or doctrine which may be considered practically useful, will, although not strictly novel, be regarded as worthy of commemoration. It must be obvious to all who are aware of the immense mass of information which is almost daily put forth by the medical press of this and other countries, that the notice of every subject would be an impossibility. It therefore devolves upon the writers of each Report, to select only such articles for retrospection as may possess superior recommendations, either of an intrinsic character, or in relation to the main end and aim of all medical knowledge—the alleviation of suffering and disease.

I.

REPORT ON PRACTICAL MEDICINE.

The Institutes of Medicine. By MARTYN PAINE, M.D., Professor of Institutes of Medicine and Materia Medica in the University of New York, &c. (Fourth Edition. New York: Harper Brothers, imp. 8vo., 1858, pp. 1095.)

DR. MARTYN PAINE is an anti-chemist, and an anti-humoralist: he is also an utter unbeliever in the prevailing physical doctrines of life and disease. "Solidism and vitalism," he tells us, "will form the basis of these Institutes," and upon this basis, accordingly, he rears a vast superstructure of physiology, pathology, and therapeutics.

On this side of the Atlantic, we think that these doctrines will not meet with many ardent admirers; but Dr. Martyn Paine will meet with not a few who, in common justice, will study what he has written upon the reflex action of the nervous system, when they know what he lays claim to in this subject. Now what our author lays claim to here will better appear in his own words than in anything we can say, and we leave him, therefore, to speak for himself. For ourselves, we fear that the reader will lose himself not unfrequently in an interminable wilderness of words, and as frequently fail to find the idea which these words, according to their author, have been intended to express. We leave, then, our author to speak for himself, merely adding, that his statement is from an article in an appendix, headed 'Rights of Authors,' and dated New York, September, 1857.

"The author of these Institutes (and it will soon appear that he acted wisely) has sometimes thought it expedient to assert his claim of originality, in advance, to many doctrines promulgated in the work; as, for example, all that is most essential in the application of the nervous power, or reflex action of the nervous system to pathology and therapeutics, and to much of what is most important in the natural state of the functions. This may be readily seen by consulting p. 106, § 222 *b*, pp. 107—116, § 225—234, p. 295, § 476 *a*, p. 318, § 493 *d*, p. 321, § 496, 497, pp. 323—340, § 500—514, p. 465—467, § 714—719, p. 506, § 803—804, p. 515—516, § 819 *b*, p. 661—663, § 894—896, p. 666—676, § 902 *b*—904, p. 679—680, § 905 *a*, p. 690—691, § 906 *g*, p. 693—695, § 917—923, p. 698, § 931—935, p. 703—711, § 940—952, p. 746, § 990 *b*, &c., where all the subjects relate to the reflex action of the nervous system, and present the nervous power as an important vital agent in the various processes of organic and animal life, in the production of disease, in the operation of remedies, in all the results of bloodletting, in the changes which take place in the secreted and excreted products—having also originally set forth the agency of the nervous power in voluntary motion (index i. article *Will*), and as this power is the efficient cause of the modifications of organic results under the influence of mental emotion (index i., article *Mental Emotions*, and references at p. 867, § 1067). Indeed, as the reader will have seen, the foregoing doctrines relative to the reflex action of the nervous power, operating as a vital stimulus, or vital depressant, or vital alterative, as it may be modified in its nature by one cause or another (§ 107—109, 227—230, p. 661—662, § 894 *b*), pervade this work. The same doctrines are at the foundation of the author's 'Medical and Physiological Commentaries,' published in 1840, while the present work was published in 1847. In the mean time he has also labored to inculcate them throughout the course of medical lectures in the University of New York—first on the 'Institutes of Medicine and Materia Medica,' from the year

1841 to 1850, and subsequently, to the present time (1857), on 'General Therapeutics and Materia Medica.'

"It may be worth saying, also, that the author preserves the term 'sympathy,' though always meaning by it, as he strictly defines, reflex action of the nervous system, and this whether he employs the term 'remote sympathy' or 'contiguous sympathy.' The elements of sympathy, as set forth in the work, are the nervous power and sensibility. All this will be readily seen by a reference to index i. Also, among other general remarks of a similar import, the author has the following:—

" 'Notwithstanding all the laws of sympathy that are necessary to the full interpretation of the remote effects of morbid and remedial agents are as well established as any laws in physics, they have not been applied to these important objects; but, on the contrary, those philosophers who have contributed most to their critical exposition, overlook their pathological and therapeutical bearings, and cling to the doctrines of humoralism and of the operation of remedies by absorption; nor have they applied, in the least, the nervous power in a philosophical manner to an explanation of the natural phenomena of sympathy' (p. 111, § 234 a).

"When the foregoing works were first published, it was in the midst of a universal prevalence of the chemical and physical doctrines of life and disease, and the author stood alone in the field of vital physiology, and in the application of the reflex action of the nervous system in resolving the great problems in physiology, pathology, and therapeutics. A few, however, had the quick sagacity to see its importance as presented by the author; and since the decline of organic chemistry began, others have entered upon the inquiry, and the most zealous have promulgated as original with themselves many of the doctrines which belong to the author of these institutes, especially such as are relative to the nervous system. But the author has relied upon his professional brethren for ultimate justice: '*ultimum et unicum remedium.*' '*Jus aliquando dormitur, moritur nunquam.*'

"But the author has lately seen so great an indisposition, in certain quarters, to allow him any credit for his labors, that he has concluded to make this expostulation, which refers, particularly, to the following dispute about the authorship of matters in which neither of the gentlemen has any interest, but the writer alone of these Institutes. This rival claim appears in an article published by J. Adams Allen, A. M., M. D., in the 'Medical Independent' for September, 1857, p. 381, Detroit, Michigan. Thus:—

"It appears, from a late number of the London 'Lancet,' that M. Hall (Marshall Hall) recognizes to a certain extent the priority of Dr. Campbell. His words are these:—

" 'I arrive at this conclusion: the idea and the designation of an excitosecretory action belongs to Dr. Campbell, and his details are limited to pathology and observation. The elaborate experimental demonstration of reflex excitosecretory action is the result of the experimental labors of M. Claude Bernard. My own claim is of a very different character, and I renounce every other. It consists in the vast generalization of excito-motory action throughout the system. I trust Dr. Campbell will be satisfied with my adjudication. There is the excito-secretory function as applied to pathology, an ample field of inquiry for his life's career, and it is indisputably—his own. He first detected it, gave it its designation, and saw its vast importance.'

"Dr. Allen then continues:—

" 'M. Hall thus far freely and fully admits the priority of Dr. Campbell, and the latter gentleman bases his claim upon the date, May, 1850. I shall undertake to show that this same doctrine was *first* publicly announced and illustrated in my lectures at the Indiana Medical College in November, 1848, and thenceforth continuously during the continuance of my public teaching before the several classes of that College, and also the medical classes of the University of Michigan, until my connection with that institution "expired by limitation" in 1854. My own manuscript containing this doctrine was written in May or June, 1848,' that is to say, more than one year after the publication of these Institutes.

"What I do claim is the great generalization that the excito-influence is followed by a reflex change in which the effect is not a motion, but a modification of vascular and nutrient action. That this effect takes place by means of the double nervous arc. A vast number of therapeutic phenomena are thus explained,' (as the reader will find, very extensively, in many chapters of this work, particularly in those upon remedial action, therapeutics, counter-irritation, cathartics, &c.)

"Now, the whole of the foregoing doctrine is impressed upon the 'Medical and Physiological Commentaries,' and upon half of the pages of these Institutes, and has been always taught extensively in the author's lectures since 1841.

"Dr. Allen claims, also, the application of the principle to therapeutics, and remarks that, 'in my course upon 'General Therapeutics' the subject of 'Counter-Irritation' came under review,' and concludes that 'the impression must be transmitted to the nervous centres, and thence reflected to the affected organ. In other words, the influence is primarily exerted upon the cerebro-spinal system, and secondarily upon the internal affected organ. This is the gist of the whole matter, and the point consists in the recognition of reflex cerebro-spinal action, which, in the instances adduced, give rise to a molecular or integral change in the inflamed tissue, and not a muscular contraction. The oral elaboration of this principle was suggested by an idea [?] which does not even now appear to have occurred to either M. Hall or Dr. Campbell, viz.: The motor effect is merely secondary, and not a necessary part of the action of the nervous arc.'

"Here, also, the whole of the foregoing doctrine appears throughout these Institutes. But they embrace a long chapter particularly upon 'Counter-Irritation,' in which it will be seen that the author has employed nearly the foregoing language of Dr. Allen, especially at pages 646, 647, § 893 *a*, and with a great elaboration and extensive application of the doctrine throughout the work; which had been also antecedently taught in his lectures for seven consecutive years before Dr. Allen promulgated the same views.

"To show still farther this partiality for the author's writings, or his lectures (then familiar to his large classes of students), he will quote from Dr. Allen the following conclusions:—

"The effect is motory, if contractile fibre be present.

"The effect is secretory, if secretory organs be supplied.

"The effect is sensation, if sensitive neurine be reached.

"The effect is perception, or intellection, if the organ thereof be in connection with the reflex nerve."

"The effect produced, then, depends upon the structure and condition of the organ reached."

"This influence is not confined to the mere increase of action, as the term excitor might perhaps suggest. The reverse might take place—the excitor may rather become the depressor. It would be as correct to say the depressor-motory, the depressor-secretory, as to say the excitor-idem."

"Now the author of these Institutes not only dwells emphatically upon the depressing and sedative influence of reflex nervous action, according to the nature of the remote causes and special conditions of disease (p. 107—111, § 226—233, p. 507, § 806, p. 661—662, § 894—895, p. 671—672, § 904 *a*, p. 735, § 978, and references in § 1067 *a*, *b*, as to mental emotions, and in many other places), and upon its operation according to the natural structure and special vital constitution of organs, and their varying conditions (p. 59, § 129 *g*—*i*, p. 61—69, § 132—156, p. 73, § 163, p. 109, § 229 p. 111, § 233, p. 285, § 555 *d*—*f*, p. 313, § 487 *A*, p. 353—362, § 525—529, p. 374—383, § 576—584, p. 415—417, § 649, p. 418, § 651 *b*, p. 421—423, § 657—658, p. 523, § 827 *c*, p. 542, § 854 *bb*, p. 613, § 892 *b*, p. 644—650, § 893 *c*—*i*, p. 665—672, § 902—903 *b*, p. 746, § 990 *b*, and the numerous references in those sections); but the author represents, also, the reflex action as variously alterative in organic life, and this imputed attribute pervades the author's writings. He enforces, every where, the doctrine that the reflex action of the nervous power is the modifying cause through which all the changes are effected by morbid and remedial agents in parts that are not immediately connected with the direct seat of their

action; and, farther, that the principle is precisely the same when the nervous power is brought into operation by direct influences upon the nervous centres (as in the case of their diseases, or when the passions operate, or as the will determines voluntary motion), as it is when it is brought into operation in that indirect manner known as reflex action.

"Indeed, every one of the foregoing doctrines, in all their particularities, as quoted from the American claimant, are taught, at great extent, in the volume before us, as may be readily seen by consulting the references made in this protest, and, more extensively, index i., articles *Structure, Nervous Power, Sensation, Sensibility, Sympathy, Organic Functions, Remedial Action, Mind, Mental Emotions, Will*—'*Si queris monumentum, circumspice.*' It may appear superfluous, however, to have made these specific references in an article connected with the work itself; but it is done to encourage those readers who might not otherwise be inclined to ascertain the facts.

"But the writer is more interested with the European umpire, of whom he has felt that he has much more reason to complain.

"*Omne animi vitium tanto conspectus in se
Crimen habet quanto major, qui peccat, habetur.*"—JUVENAL.

"That the author's physiological and medical writings were generally known in Europe many years before the period at which 'Dr. Campbell bases his claim' (1850), is evident from the distinguished honors to which they had led in that country before that period—that from the Medical Society of Prussia as early as 1842—that from the Medical Society of Leipsic in 1843; and the 'Medical and Physiological Commentaries' (of 1840) were published simultaneously in London and New York, and as to the United States, the 'Commentaries' were early distributed throughout the land, and his 'Institutes of Medicine' more than a year, also, before Dr. A.'s lectures were delivered; and the author's lectures at the university, which form the groundwork of his Institutes, had been listened to annually by medical students from all quarters of the Union since the year 1841. In 1848 the author applied the doctrine of reflex nervous action to a physiological demonstration of the substantive existence of the soul and instinctive principle, which was then published in pamphlet form, and in 1849 the work was extended and assumed the shape of a book, and is now incorporated, in its essential parts, in these Institutes.

"Nor is that all: for the whole of this doctrine of reflex nervous action, and of the operation of the nervous power as an alterative, an excitant of the secretions and of vascular action (both direct and reflex), a depressant and sedative (according to the nature of exciting causes), and the great immediate cause of diseases and their cure—variously modifying organic actions—was set forth extensively and circumstantially in an 'Essay on the Modus Operandi of Remedies' in 1842, of which the author distributed, at that time, a large number of copies in London, and addressed four thousand copies to physicians throughout the United States. The author not only sent a copy of the work to Dr. Hall, but dedicated it to him (along with Prof. J. Müller and Dr. A. P. W. Philip) in connection with an 'Essay on the Philosophy of Vitality,' and he may add that he controverted, in the former essay, doctrines of Dr. Hall (in 'Memoir on Diseases and Derangements of the Nervous System,' 1841), which were in direct opposition to those which are now in question (also, p. 296—297, § 476, b). These essays were subsequently bound up in the third volume of the 'Medical and Physiological Commentaries,' where the former may be readily consulted. But Dr. Philip had fully deduced from his experiments the sedative as well as exciting influence of the nervous system upon vascular action before Dr. Hall's experiments were made (§ 492).

"As to M. Bernard, his experiments bearing upon the connection of the nerves with the function of secretion, however much they may have been varied and multiplied, were anticipated long before by those of A. P. W. Philip, which are quoted extensively in these Institutes (p. 290—321), and towards which Dr. Hall had no friendly disposition (p. 306—308, and where the writer has controverted his views). The merit of originality which belongs to the present writer, in relation to these experiments, consists in their exten-

sive application in illustrating the functions of the nervous power as a vital agent, profoundly interested not only as an 'excito-secretory' power, and as a modifying cause of all secreted products, nutrition, &c., when diverted from their natural standard, but in deducing from them a universal agency of the reflex action of the nervous system, through 'the double nervous arc,' in the production and cure of disease, and by which he labored to explode the chemical and physical doctrines as early as 1840. But that the writer may not be misapprehended, he will say that he endeavors to establish the fact that secretion in animals, as in plants, is conducted by powers implanted in every part, but that it is constantly influenced, physiologically, pathologically, and therapeutically, by reflex action of the nervous system.

"The writer is very sensible that unaccountable coincidences often present themselves in the development of new thoughts, and in the discovery of hidden things, especially where enduring reputation may be won. '*Ubi mel, ibi apes.*' — '*Uno tiene la fama, y otro carda la lana.*' But the reader, with these Institutions before him, will quickly find that much that is claimed by Dr. Hall, and all that he has granted to Dr. Campbell, in the foregoing quotation, and, therefore, all that Dr. Allen appropriates to himself, abounds in this volume, and, in fact, constitutes the life and soul ('*ζωή και ψυχή*') of the work, as it does, also, of the 'Commentaries,' and of the essay on the 'Modus Operandi of Remedies;' nor can the reader fail of the conclusion that, were Dr. Hall's 'adjudication,' and Dr. Allen's after-thought, founded in any justice, and were not the claimants themselves the obnoxious parties, the present writer would have been long ago convicted by them and by others of arrogant assurance and the grossest plagiarisms. Nevertheless, the author is most happy to find that his solitary position is becoming relieved, and that a practical direction has been given to his labors by others which cannot fail of carrying forward the great doctrines at which he has toiled, and against manifold obstacles, during his professional life."

Researches on Gout. By Dr. GARROD, Professor of Materia Medica in University College, &c. (Proceedings of Royal Medical and Chirurgical Society, June 8, 1858.)

The author divides his communication into two parts: in the first are detailed the result of his analyses of the urine in the different forms of gout; the second is devoted to the consideration of the influence of the different forms of colchicum upon the urinary secretion. After describing the method of analysis employed in arriving at his results, and speaking of the opinions usually held upon the subject of the urine in gout, Dr. Garrod proceeds with the first part of his paper, the cases in which he subdivides into three classes.

1st Class.—Cases of acute gout, occurring in patients most of whom in the intervals of the attacks enjoyed pretty good health. About thirty analyses for uric acid made on the twenty-four hours' urine of several different patients are detailed, and a few for the determination of urea; and from these the following deductions are drawn. In the earlier stages of acute gout, the urine, for the most part, is small in quantity, and the uric acid, measured by the twenty-four hours' secretion, diminished; that this acid is thrown out in much larger quantities as the disease becomes mitigated, and that amounts much above the patient's daily average may be sometimes passed, forming critical discharges; and, lastly, the acid again becomes lessened, although not to the extent which occurs either just before or at the commencement of an attack. That the urea is usually thrown out in about the normal quantities, although its free elimination by the kidneys is often somewhat impeded, and, in consequence, the blood contains a small excess, which may possibly explain, in some measure, one peculiarity of gouty inflammation when it attacks superficial parts—namely, the presence of œdema and the subsequent desquamation of the cuticle. That occasionally a trace of albumen exists in the urine, but very seldom compared with its occurrence in the chronic forms of the affections.

The 2d Class included cases of chronic gout, the majority of which were not suffering from any urgent symptoms, but many were afflicted with some

of the sequelæ of the affection, as shown by the concretions of urate of soda upon different parts of the body, and the stiffened condition of the joints. More than sixty analyses for uric acid are given in this class, made upon the day's urine of fourteen different individuals, and numerous determinations of urea are also detailed. The deductions from these observations may be thus summed up: The urine in chronic gout is usually rather pale in color, below the average tint in the healthy subject, of low density, and increased in quantity. The amount of urea, except in extreme cases, the same as in health (due account being taken of the diet of the patient at the time the urine is passed). The uric acid is very much diminished indeed, and subject to excretion in very varied quantities at different times; and, lastly, the presence of a small amount of albumen is exceedingly frequent. Deposits in the urine are not of common occurrence in these subjects; but they occasionally occur on the cooling of the fluid, sometimes in the form of urate of soda or ammonia, at other times in crystallized and more or less colored rhombs of uric acid.

3d Class.—Urine of individuals who had suffered more or less frequently from attacks of acute gout, of varying degrees of intensity, examined at the time of complete freedom from any symptoms of the disease. Several determinations are made on the urine of six individuals, and the following results arrived at. In no one of the six patients' urine did the amount of uric acid reach the quantity usually considered to be the average in health; in most of them it was far below, and it would appear that the kidneys in such individuals are apt to lose some of their excretory power for this body, a circumstance which must necessarily render the blood impure, and account for the liability which such patients possess to periodic visitations of this malady, and the great difficulty of effecting a radical cure of the disease.

Part 2 is devoted to an examination of the influence of colchicum upon the urine.—The usual opinions held by different authorities, as Christison, Chelius, &c., upon the *modus operandi* of this drug are first related, and many of the analyses brought forward in their support are shown to be very fallacious, the error arising not from any fault in the analyses themselves, but from small specimens of urine, passed at particular times of the day, being examined, and no account taken of the twenty-four hours' elimination. Between fifty and sixty analyses, showing the amount of the uric acid eliminated, are given, together with numerous determinations of the urea. The results of these observations on the action of colchicum were as follows:—

In one case, where no gouty affection existed and no febrile disturbance was present, colchicum appeared to have the effect of slightly diminishing the quantity of urine, and likewise of diminishing somewhat the excretion of uric acid.

In a second case, similar to the above, the influence of the medicine was notably to diminish the quantity of urine, the uric acid being slightly increased, but the increase was less than a quarter of a grain per diem.

In case 3, a gouty patient recovering from an acute attack, the uric acid was somewhat increased during the administration of colchicum, but not in a greater degree than frequently occurs under such circumstances when no medicine is given.

In case 4, both the urine and the uric acid were diminished by the influence of the drug; and so on for the other cases.

The author considers, as the results of his analyses—

1st. That there is no evidence to prove that colchicum produces its effects upon the system by causing the kidneys to excrete an increased amount of uric acid, but that, in fact, the reverse would seem to hold good.

2d. That colchicum is not always a diuretic, but often diminishes the renal secretion, especially when its action is exerted upon the alimentary canal.

3d. That colchicum has no marked influence on the excretion of urea.

An appendix to the paper contains the results of seventy-two analyses, performed on consecutive days, of the urine of a gouty patient; and the results exemplify in a marked manner the peculiar mode in which uric acid is frequently eliminated in such cases, and also tends to confirm the conclusions

arrived at with respect to the action of colchicum upon the excretion of this principle.

An Essay on Wasting Palsy (Cruveilhier's Atrophy). By WILLIAM ROBERTS, B. A., M. M. Lond., Physician to the Manchester Royal Infirmary. With four lithographed plates. (8vo., London, Churchill, 1858, pp. 210.)

The purpose of this volume is to collect together what is now known respecting a peculiar species of palsy, of which the most striking character is a remarkable wasting of the disabled muscles which is independent of lead poisoning. On the Continent, since 1850, the subject has attracted considerable attention, and Cruveilhier, Aran, Duchenne, Oppenheime, Wachsmuth, and others have made it the object of special study; but in this country the existence of the disease has been scarcely recognized, and the characters very imperfectly known, although, as Dr. Roberts clearly shows, in his historical introduction, cases were noticed and fully described, even before it had attracted attention elsewhere, by English writers of a former day—Cooke, Caleb H. Parry, Charles Bell, Abercrombie, Darwell, and Herbert Mayo. The name of *wasting palsy*, which is adopted by the author, will, in all probability, be a favorite with English ears—a greater favorite than another name which he also suggests, namely, *Cruveilhier's paralysis*, or *Cruveilhier's atrophy*. At any rate, we are glad to find any fair English equivalent for some of the roundabout modes of expressing the same thing, as the *atrophie musculaire progressive* of Aran, the *paralysie musculaire atrophique* of Cruveilhier, the *atrophie musculaire avec transformation grasseuse* of Duchenne, and so on.

Dr. Roberts has spared no pains in the execution of his task, and the manner in which he has succeeded is deserving of very high praise. In order to obtain a correct portrait for diagnosis, he gives in detail seven cases—five falling under his own notice, one by Cruveilhier, and the seventh by Dr. Th. Valentiner; and after this he tabulates with great care the salient particulars of no less than 105 cases. He furnishes us, indeed, with all the information which is to be met with, or which patient research can elicit; and if the disease be not familiar to us now, it must be simply from inattention to the picture which is here drawn for us. In the table the cases are arranged in two divisions (an arrangement first proposed by M. Aran), according as they are *general* or *partial*. After the cases the author proceeds to consider a number of general questions naturally arising out of their anatomical distribution and symptomatology, invasion, course, determination, etiology, post-mortem appearances, nature, diagnosis, prognosis, and treatment.

The following table gives a comprehensive view of the anatomical distribution of the atrophy in 60 cases of the partial type. It requires no comment.

	Total No. of times affected.	No. of times exclusively affected.	Both sides together.	Right side only.	Left side only.
Upper extremities	55	48	31	17	7
Hands	39	7	17	17	5
Forearms	30	0	15	11	4
Upper arms	32	0	18	8	6
Shoulders	33	3	22	6	5
Lower extremity	12	6	8	1	3

The symptoms are considered under the separate heads of lesions of motility and lesions of sensibility. The chief of the lesions of motility is loss of powers the secondary ones are fibrillary tremors, cramps, twitches, and diminution of electric contractility. In uncomplicated cases there are no lesions of sensibility. Tactile sensibility retains its delicacy in the skin over the affected muscles. When the tongue is attacked, neither the gustatory sense nor its common sensibility is in the least blunted; and, according to Duchenne, the special muscular sense survives to the last. There is neither pain, numbness,

nor any other abnormal feeling. But matters do not always pass thus, and in a large minority of cases the sensory nerves are untowardly affected; and pain, sensitiveness to cold, and even slight numbness, are added to the more constant symptoms. Neuralgia, either in the nerves of the diseased part or elsewhere, is also said to be a not uncommon *complication*. The general and mental health are not affected.

The invasion of wasting palsy is usually slow and insidious; the starting point generally in the upper limb, and in the hand particularly; the course is measured, not by days and weeks, but by months and years; the termination may be in recovery, permanent arrest, or death. With reference to prognosis, Dr. Roberts says: "The longer wasting palsy has continued, the less amenable it is to treatment, and the more remote is the prospect of recovery. No case which has lasted above two and a half years has hitherto issued in recovery. With regard to recovery from a partial atrophy, which has become stationary, the same remarks hold good. After a year or two, if no amendment has set in, I fear the foregoing histories do not warrant any hope of recovery."

Cold and overwork stand out as among the most important causes, and on this head Dr. Roberts says: "It may be mentioned that when cold is the source of the atrophy, it is much more apt to extend to the muscles of the trunk than when it arises from overwork. Of the 25 cases attributed to overwork, 18 were partial, and only 7 general; whereas of the 16 charged to the agency of cold, 6 were local and 10 general. It is a much more serious matter, therefore, for the atrophy to be tracked back to cold, or a wetting, than to overfatigue of the muscles. As might have been expected, in more than one instance the disease is alleged to have arisen from cold combined with fatigue."

The varying and conflicting results of post-mortem examination are summed up as follows:—

"The nervous system was examined in 13 cases.

"In two of them the spinal centre was sound, but the anterior roots and peripheral distribution of the muscular nerves were extensively diseased.

"In three cases there was inflammatory softening of the cord, accompanied in two of them with fatty degeneration and destruction of the anterior roots, and in one of these of the peripheral muscular branches also. In the third case the anterior roots and peripheral branches were healthy.

"In one case there was amyloid degeneration of the cord, confined to the posterior median columns, and a granular degeneration of the peripheral muscular branches, but with entire preservation of the anterior roots.

"In two the nervous centres and anterior roots were found, on the most rigorous investigation, perfectly sound.

"In the remaining four cases the nervous system was pronounced healthy so far as the examination was conducted.

"I have tabulated these results as follows:—

Nos. of the cases in the table of abstracts.	Spinal cord.	Anterior roots.	Peripheral distribution.
71, 72, 87	Healthy.	No mention.	No mention.
73, 74	Healthy.	Atrophied.	Atrophied.
83	Healthy.	No mention.	Healthy.
79, 89, 90	Healthy.	Healthy.	No mention.
94	Amyloid degeneration.	Healthy.	Atrophied.
95	Partly softened, partly indurated.	Healthy.	Healthy.
97	Softened.	Atrophied.	Atrophied.
98	Softened.	Atrophied.	No mention.

The post-mortem examinations, the clinical facts, and the deductions of physiology, in Dr. Roberts's opinion, all go to show that no lesion, acting downwards from the nervous system to the muscles, can produce the phenomena of

wasting palsy; and with Duchenne, Aran, Oppenheimer, Wachsmuth, and Dr. Meryon, we have to look for the primordial phenomena of the affection in the muscles themselves—probably in a fatty and granular degeneration of the fibre. It is fully admitted, however, that the nervous and muscular systems will sympathize with and react upon each other in this diseased state. We may look, our author says, for three orders of phenomena:—

"1. *Primary or direct*.—These are, destruction of muscle and consequent loss of power. They are necessarily always present, and in the simple cases are the sole factors in the problem.

"2. *Secondary or reversed*.—These include atrophy and fatty degeneration of the motor nerves, together with softening or other change in the spinal cord. These are not invariably present. Probably some of the neuralgic pains should find a place here; the nervous filaments ministering to the muscular sense, being involved in the general devastation, may be the source of those severe pains sometimes experienced in the substance of the affected muscles; but I am disposed to believe that most of the abnormal sensations and movements are the expression of the next order.

"3. *Tertiary or reflected*.—These may be produced through irradiation of impressions conveyed to the spinal centre by the nerves of the special muscular sense; or they may be the direct consequences of the secondary organic changes just described as going on in the part of the cord where the nerves of the decaying muscles originate, whereby the contiguous sound portions are irritated. In both these ways abnormal movements and feelings are provoked—undue sensitiveness to cold, neuralgic pains along the nervous trunks or in the joints, twitches, cramps, contractions, and fibrillary tremors."

The treatment advocated divides itself into two lines of indication.

"The object of the first is to arrest or cure the atrophy of the muscles, and that of the second to combat the secondary phenomena. In dealing with the primary disease, our first endeavor must be to seek out the *exciting cause*, and obviate, if that be practicable, its continued operation. The handicraftsman must immediately renounce the practice of his mechanical art; the laborer must take off the strain from the overworked members. If cold and damp be the original excitant, they must be sedulously avoided in future, to escape the risk of a recrudescence or relapse. The *direct* treatment must have for its end, in the active stage of the malady, to restore the nutritive operations from their depraved estate to their original healthy tenor. This is accomplished by a judicious combination of perfect repose and regular stimulation. Experience has shown that for the latter purpose no remedy approaches galvanism, which should be applied to the muscles daily, or every other day, in the manner above directed. With galvanism may be combined gentle frictions of the parts affected, with some stimulating liniment; and, if the means be at hand, warm sulphuretted or saline baths may be employed occasionally, as adjuvants to the local applications. When the disease has become stationary, more violent stimulation by electricity and friction must be resorted to, and cold bathing, with enforced exercise of the muscles, may be tried, if other means fail of effect. Remedies should be applied without loss of time, for when the atrophy has extensively affected the muscles of the trunk, or has remained stationary for a lengthened period, the chance of recovery diminishes in an accelerated ratio.

"The *secondary* phenomena, neuralgic pains, spasms, &c., are most effectually subdued by warm baths and inunctions; or, if they obstinately persist, by morphia-dressed blisters over the painful tracks. Any ailment of the general system, or concurrent and independent disease, must be dealt with, in accordance with the recognized canons of therapeutics."

On Cerebellar Hemorrhage. By Dr. J. R. HILLAIRET, Physician to the Hospital for Incurables in Paris. ('Archiv. Gén. de Méd.,' February, March, April, May, 1858.)

This very elaborate and valuable memoir is divided into two parts; one part containing eight cases, six of them original; the other part containing a general description of the two principal forms of the malady, an examination of

each of the more important symptoms, and a comparison between cerebellar and cerebral hemorrhage.

Cerebellar hemorrhage, according to M. Hillairet, occurs under two forms; one slow, and progressing regularly from the attack until death; the other sudden, and almost immediately fatal. The last is the most frequent of the two.

In the first form the consciousness is preserved at the moment of the attack; in the second form the consciousness may be lost at the moment of the attack, but only momentarily.

In both forms, but particularly in the first, the attack is followed by vomitings, which recur frequently during the course of the malady, and will not be stayed. M. Hillairet considers that vomiting is a symptom which has some special relation to cerebellar hemorrhage, or to some lesion which may bring about an augmentation in the volume of the cerebellum, and he differs with those who think that it is a symptom of cerebral hemorrhage. In some cases the vomiting has coincided with laceration of the gray substance of the periphery, but in all cases the author refers this phenomenon to some slight compression or irritation of the pneumogastric nerves, which compression or irritation is brought about by the pressure of the blood effused within or upon the cerebellum. Vomiting is also observed in other affections of the cerebellum, which are attended by augmentation in the volume of this organ, such as abscess, cysts, tubercles, and, but very rarely, in cases of softening where the volume of the organ is not sensibly increased, and where, consequently, the pneumogastrics are not subjected to the irritation of pressure. In a word, M. Hillairet differs from the majority of writers on this subject, and considers that vomiting is of very rare occurrence in cerebral hemorrhage, unless the cerebellum is implicated. Thus, according to his experience, there was vomiting only in 1 case in 30 where the hemorrhage was cerebral, but as much as 1 in 2.30 where it was cerebellar.

In sudden and severe cerebral apoplexy the patient falls without sense and consciousness, breathes stertorously, and, as a rule, death does not happen until after an interval of some hours; in sudden and severe cerebellar apoplexy, on the contrary, the patient is often able to give expression to his suffering at the moment of attack by a cry, a gesture, or in actual words, and except for a short time before death, which happens speedily, the intelligence is not completely abolished.

Hemiplegia is not so frequent a symptom of cerebellar apoplexy as has been supposed. It has been said to be present in a third of the cases; in the cases recorded in the present memoir it was not met with. The paralysis has been always on the opposite side of the body; at the same time it is possible, as M. Longet has shown, that in some cases a want of decussation may lead to paralysis on the same side. In no instance would there appear to be conclusive proof that the paralysis was either general or confined to the lower part of the body. In many cases the paralysis is incomplete, and the limbs relaxed rather than palsied. Thus, the patient will be unable to preserve his equilibrium if he attempts to stand; but if he lies down, he is able to move his legs about, or even to raise them from the bed and maintain them in an elevated position.

There was no tendency to move backwards or to turn round and round in any of the cases contained in M. Hillairet's memoir; but in one of them the patient, before the attack complained of being pushed by some irresistible force towards the left side.

Paralysis on the opposite side of the face, which is habitual in cerebral hemorrhage, is not only met with in exceptional instances in cases of cerebellar hemorrhage. In the latter cases, also, deviation of the tongue is quite exceptional; but notwithstanding this, the speech, as a rule, is dull and drawling. Only once in 26 cases was there any deviation of the commissures of the lips. M. Hillairet also directs attention to a silly astonished expression of countenance, accompanied by a fixed stare, as being present at the time of the attack; but this phenomenon may easily be overlooked, for it soon passes off.

In severe cerebellar apoplexy the sensibility would at first seem to remain uninjured. Once, about the middle of the course of the disorder, M. Hillairet

observed a momentary state of hyperæsthesia. "Once only was the sensibility lost from the beginning. Afterwards, as a matter of course, the sensibility disappears as the state of coma gains ground.

The special senses are affected the same way as common sensibility. At the beginning it is quite exceptional for the sense of hearing, smelling, or tasting, to be at all impaired. Sometimes, when the *processus cerebelli ad testes* are injured or destroyed, sight may be enfeebled or abolished. It would seem also that contraction and immobility of the pupils are the rule, dilatation the exception.

Convulsions are not met with in cerebellar hemorrhage, if the mischief be confined to the organ, or in cases where the effused blood has set up an inflammatory action in the surrounding cerebellar structures.

Most generally the bowels do not act, but sometimes there are involuntary evacuations. In the form of apoplexy which is slow and progressive, the power of passing water is preserved at first; in the sudden form it is lost from the beginning.

The mean duration of cerebellar apoplexy, not including "les cas foudroyants," is a day and a half.

In a word, there are certain common symptoms, which belong equally to cerebral and cerebellar apoplexy, such as general headache, vertigo, dimness of sight, ringing in the ears, hemiplegia, and so on; but there are also certain differences which may help us to a diagnosis, and M. Hillairet's memoir is an important contribution to the knowledge of these differences.

The Physiology and Pathology of the Central Nervous System. By E. BROWN-SÉQUARD, M. D. ('Lancet,' various Nos. from July 3d to December 18th, 1858.)

The following lectures, which contain the most recent statement of the views of this distinguished physiologist upon this subject, were delivered before the Royal College of Surgeons of England, in May, 1858.

Lecture I.—This is devoted chiefly to the setting forth of the truth of Sir Charles Bell's theory as regards the existence of two distinct sets of nervous conductors—the sensitive and the motor. With respect to the pain produced by the irritation of the anterior roots of nerves (the "recurring sensibility" of Magendie)—a phenomenon which has been urged as an objection to the purely motor character of these roots—the explanation given by Dr. Brown-Séquard is, that the irritation gives rise to cramp, which cramp is the cause of the pain, and his conclusion is, that there is no sensibility of any kind in the anterior roots, and that it is because they are motor, and not because they are sensitive, that they cause pain when they are irritated.

Lecture II.—In this lecture Dr. Brown-Séquard relates certain experiments which show that the transmission of the sensitive impressions along the spinal cord is chiefly in the gray matter. After refuting the views of Longet, and exposing some principal causes of error in experimenting, he relates certain experiments to show that the part, though not itself endowed with sensibility, may be a conductor of sensitive impressions. After this he relates experiments which prove, 1st, that a transversal section of the posterior columns of the spinal cord, instead of causing anæsthesia, is followed by hyperæsthesia; and, 2dly, that a transversal section of the whole spinal cord, except the posterior columns, is followed by complete anæsthesia. As a general conclusion, it would seem that the conductors of sensitive impressions, at their arrival in the spinal cord, either enter directly into the central gray matter, or go up or down a little way in the posterior columns also, most likely in the posterior gray cornua, and in the posterior part of the lateral columns, and entering afterwards the central gray matter, by, or in which, the two sets ascend towards the encephalon. It would seem, also, that the posterior columns of the spinal cord are not, as has been imagined, a bundle of fibres, from the posterior roots of the spinal nerves; and that the restiform bodies, which are the continuations of the posterior columns, are not a place of passage of any of the conductors of the sensitive impressions of either the various parts of the trunk and limbs, or of the head;

and that, therefore, the cerebellum, with which the restiform bodies are connected, does not receive from them any of such conductors.

Lecture III.—In this lecture, Dr. Brown-Séquard shows that the celebrated experiments of Galen, which have been always thought to prove that there is no decussation of the conductors of sensitive impressions in the spinal cord, do not prove anything in this respect; and after this he proves, we think conclusively, that *the conductors of sensitive impressions make their decussation in the neighborhood of the place of insertion of the sensitive nerves or roots of nerves, in the cerebro-spinal axis.* As regards the sensitive fibres of the trunk and limbs, the following experiments show that *their decussation takes place in the spinal cord.*

"1st. In a mammal the spinal cord is laid bare at the level of the two or three last dorsal vertebrae, and a lateral half of this organ (including the posterior, the lateral, and the anterior columns, and all the gray matter, on one side) is divided transversely. The animal is left at rest for a little while, and then it is ascertained that sensibility seems to be much increased in the posterior limb on the side of the section, while it seems to be lost, or extremely diminished, in the posterior limb on the opposite side. There seems to be, therefore, *hyperæsthesia* behind and *on the side* of a transversal section of a complete lateral half of the spinal cord; while, on the contrary, there seems to be *anæsthesia* behind the section, and *on the opposite side.*

"This experiment is one of the two made by Galen; but he seems not to have looked at all the condition of sensibility, and he simply states that there is a paralysis on the side of the section, and no paralysis on the opposite side.

"Schœps, Van Deen, and Stilling have observed that sensibility is not lost in the limb or limbs behind and on the side of the section of a lateral half of the spinal cord; but they have not remarked the most important fact, that on the opposite side there is *anæsthesia*. They also do not mention this curious result of this experiment, the existence of *hyperæsthesia* on the side of the injury.

"2d. If, after having made a first section of a lateral half of the spinal cord in the dorsal region, on the right side, for instance, and after having ascertained that the *right* posterior limb is *hyperæsthetic*, or at least extremely sensitive, we divide the *left* lateral half of the spinal cord in the cervical region, we find then that the *right* posterior limb loses entirely, or almost entirely, its sensibility. This experiment shows clearly that the sensitive impressions coming from the *right* posterior limb, after the first section, passed across the spinal cord from the right into the left side, along which they were transmitted to the encephalon.

"3d. To obtain a very striking result from the experiment, which consists in only one section of a lateral half of the spinal cord, it is better to make it after the posterior columns have been divided. We know that after this division there is *hyperæsthesia* in the parts of the body which are behind the section; if, after having ascertained this fact, the section of a lateral half is completed where the posterior columns have been divided, we find that the *hyperæsthesia* seems to increase in the side of the second operation, while, in the opposite side, not only the *hyperæsthesia*, but sensibility entirely disappears.

"4th.—There is another mode of proving that the conductors of the sensitive impressions decussate in the spinal cord. In several points of view this mode of proving is superior to the preceding. It consists in a longitudinal section of the spinal cord, an experiment already made by Galen, but the results of which, as regards sensibility, have been overlooked by him.

"The spinal cord is laid bare in the whole lumbar region, and a careful division of the entire extent of the part of the organ giving origin to the nerves of the posterior limbs, is made so as to separate the two lateral halves of the organ, one from the other. If this experiment could be executed perfectly well, nothing would be divided in the cord except the commissures, which unite the right side with the left side of the cord, and all the longitudinal elements of this nervous centre would be left *uninjured*; but it is impossible not to cut more or less on either side. However the operation has succeeded

well, i. e., when the two separated halves have been very little injured, a striking result is obtained. The voluntary movements still exist in the posterior limbs (though diminished on account of the injury to the muscles of the lumbar region), but *sensibility is entirely lost* in them. For persons who know that injuries to the spinal cord, which cause a diminution of sensibility, always produce a greater diminution of voluntary movements, this fact will not be explained by the supposition that some injury has, then, been made to the two halves of the cord, and that it is in consequence of this supposed injury that the loss of sensibility is due. At least it will, I think, be easily admitted that if the two lateral halves of the cord had been injured enough to produce a complete and a lasting anaesthesia, there would be a notable degree of paralysis of voluntary movements. We repeat that such is not the case; the animal has the use of his two limbs; he moves about pretty freely, as Galen had already said. The loss of sensibility, therefore, must depend on the section of the commissures of the spinal cord, or, in other words, on elements of this organ which cross each other in the median line, or, rather, in the median plane.

"If now we compare the results of this experiment with those of a transversal section of a lateral half of the spinal cord, we find that they agree perfectly in showing that the conductors of the sensitive impressions decussate in this organ.

"5th. Another experiment, which is a combination of two of the preceding, gives a still better proof of the decussation of the conductors of sensitive impressions in the spinal cord. A longitudinal section is made on the cervico-brachial enlargement of the spinal cord, so as to separate it in two lateral halves. I ascertain then that sensibility is lost in the two anterior limbs, while it remains, and even seems to be increased, in the two posterior limbs. Of course, if the loss of sensibility in the two anterior limbs depended upon an injury to the two sides of the cord, and not upon a section of the decussating conductors of sensitive impressions, there would be a loss of sensibility, or, at least, a diminution of it in the posterior limbs. The admission of a decussation explains the two facts—loss of sensibility in one set of limbs, and conservation of it in the other set. If we divide transversely, in the same animal, the right lateral half of the spinal cord, we find then that the posterior limb on the same side becomes more evidently hyperæsthetic than before, and that the left posterior limb loses its sensibility. The transmission for this last limb, therefore, took place by the right half of the cord, while that for the right posterior limb continues to take place by the left half of the cord."

As far as experiments go, it is very difficult to decide whether the decussation of the conductors of sensitive impressions is absolutely complete or not, but it seems to be very nearly, if not absolutely, complete. In reptiles and birds the decussation is not so complete and immediate as in mammals; in man (judging from certain pathological cases which will be considered afterwards) it would seem to be complete.

Lecture IV.—One question discussed in this lecture is—how is it that sensibility is not lost, but only more or less diminished, although the spinal cord is deeply altered? This question seems to have its solution in the following experiment:—

If we divide transversely the posterior columns in the upper part of the lumbar region in a mammal, we find that there is hyperæsthesia *everywhere* behind the section; if, then, we divide the posterior parts of the lateral columns and the posterior gray horns, we find that the hyperæsthesia increases also *everywhere* behind the section. If the section is carried further, so as to have the whole posterior half divided transversely, the posterior part of the gray matter, behind the central canal, being cut, the hyperæsthesia remains excessive *everywhere* behind the section. When another section is made, cutting a little more of the central gray matter, the hyperæsthesia disappears from *everywhere* at once, and a certain degree of anaesthesia appears *everywhere* behind the section. At last, if the whole of the central gray matter be divided, with also a good part of the basis of the anterior horns, sensibility is very much diminished *everywhere* behind the division, and it disappears entirely *everywhere* at the same time when the section has left only the anterior parts of the ante-

rior columns. The general result of this experiment is, that any change that takes place in the state of sensibility—either an increase or a diminution—shows itself *everywhere*, at the same time, behind the section.

Other questions discussed have reference to the transmission of the various sensitive impressions—touch, pain, temperature, muscular contraction, &c.—and of the orders of the will to muscles. Dr. Brown-Séquard thinks that each kind of sensitive impression requires a distinct conductor. With respect to voluntary movement, he is of opinion that the idea of two columns of the spinal cord (the anterior) alone employed in the production of these movements, must be abandoned, and that it is extremely probable that the true conductors pass in the anterior pyramids, and, after having made their decussation, pass chiefly in the lateral columns of the spinal cord and in the gray matter near these columns, and, at last, after a short distance, a number of these conductors leave the lateral columns to pass into the gray matter and into the anterior columns.

Lecture V.—This lecture is occupied chiefly with pathological cases which show that the transmission of sensitive impressions is chiefly through the gray matter of the cord, and not along the posterior columns. One case is this:—

CASE 14.—J. C—, æt. 44, admitted into St. Bartholomew's Hospital for paraplegia. The patient was lifted into a chair, and when thus sitting, he did succeed, by a great effort, in raising his legs from the ground; but afterwards the inability of motion became complete through each lower limb in its entire extent. There was no discoverable impairment of sensation in any part of the limbs; on *scratching, pricking, and pinching the skin* nowhere was any defect of feeling acknowledged by the patient. In the upper limbs there existed no defect either of motion or sensation.

Autopsy.—The spinal cord was the only seat of disease; membranes healthy. The posterior half, or columns of the cord, throughout the entire length, from the pons to the other end, was of a dark-brown color, extremely soft and tenacious. The anterior half exhibited its natural whiteness and firm consistence. The roots of the spinal nerves were unaltered; the brain was healthy. (Mr. Edward Stanley, in 'Medico-Chirurgical Transactions,' 1840, vol. xxiii. pp. 83–84.)

Lecture VI.—In this lecture, which is a continuation of the former, we have also some very important cases. Of these this is one:—

CASE 22.—A man, æt. 44, after having had cramps, formication, and weakness in the lower limbs, and paralysis of the upper limbs, for a long period, was admitted at the Charité. Sensibility existed everywhere. On the evening of the 1st of November he was able to walk with aid of some one. Sensibility remained everywhere to the last moment before his death, on the 3d of November, at three A. M.

Autopsy.—Encephalon normal. There is an induration of the spinal cord from its upper extremity to the third dorsal vertebra, and from the sixth dorsal vertebra to the lower extremity. The tissue of the cord in these parts being cut, was shining, looking like porcelain, hard and difficult to be crushed. The gray matter was also a little harder than normal, but of its usual color. The anterior and posterior roots seemed normal. In the space between the third and sixth dorsal vertebrae the cord was softened, pultaceous, resembling a whitish or rather slightly rose pulp (*bouillie*), punctuated in some places. Put in water, many parts became disintegrated, and formed a kind of emulsion. This alteration existed only in the white substance; the gray, on the contrary, seemed to have preserved its normal consistence. The microscope showed that the gray matter in both the softened and the indurated parts contained normal cells and fibres, and normal bloodvessels, while the white substance in the softened region contained but rare fibres, which were altered, containing an oily matter and granulations. There was also a quantity of granulated corpuscles of inflammation, with many capillaries, oily drops, and amorphous matter. In the indurated white substance there was less alteration, and the fibres were more normal and numerous. (Laboulbène, in 'Mémoires de la Société de Biologie,' for 1855, pp. 233–45.)

The author of the report of this case adds, that he has ascertained that sen-

sibility to pinching, pricking, touching, and tickling, and the feeling of cold, and that given by a muscular spasm due to galvanism, have persisted in this patient, although the white matter, *i. e.*, the posterior and the antero-lateral columns, had but few, and only altered fibres. A capital point in this case was the conservation of the gray matter with the persistence of sensibility.

Summing up the pathological evidence it is found, 1st, that there are many cases of alteration only, or almost only, limited to the gray matter, in which both voluntary movement and sensibility are lost; and, 2dly, that there are many cases of deep alteration of all the white substance of the spinal cord, the gray matter remaining normal, in which sensibility persisted.

Lecture VII.—In this lecture Dr. Brown-Séquard relates cases which show that the conductors of sensitive impressions from the trunk and limbs decussate in the spinal cord, and not in the encephalon, and that the conductors of the orders of the will to the muscles decussate in the lower part of the medulla oblongata, and not in the pons Varolii.

Of cases proving the existence of a decussation of the conductors of sensitive impressions in the spinal cord, these are very remarkable:—

CASE 29.—A patient was admitted into the St. André Hospital. He had paralysis of voluntary movements in the *right* side of the body, in which sensibility was preserved. In the *left* side, on the contrary, the voluntary movements existed, but there was a great diminution of sensibility.

Autopsy.—There was a fungoid growth (*végétation fungoïde*) pressing upon the *right* lateral half of the spinal cord. ('Mémoires de la Société de Biologie' for 1854.)

CASE 30.—A patient had lost voluntary movements in the two limbs of the *left* side, in which sensibility was preserved. In the *right* side sensibility was much diminished (*très obtuse*).

Autopsy.—A clot was found in the *left* lateral half of the spinal cord in the cervical region. ('Mémoires de la Société de Biologie' for 1854.)

These two cases are extremely valuable, and they agree perfectly with the results of experiments on animals. It is so also with the following cases:—

CASE 31.—A man, after having felt a sudden pain in his back, became incompletely paralyzed of voluntary movements in the *right* lower limb. Sensibility was not altered in this limb, but in the *left* side, where voluntary movements were not impaired, sensibility was entirely lost from the breast to the foot.

Autopsy.—Brain and its membranes normal. In the spinal cord an hemorrhage had taken place, and blood was found in the *right* side of the gray matter, having destroyed also its horns, and a part of the left anterior column in the dorsal region. (Monod, in 'Bulletin de la Société Anatomique,' No. XVIII, p. 349, Obs. 3, and in Olivier, *loc. cit.*, vol. ii. p. 177.)

This is a very remarkable case, teaching, not only that there is a decussation of the conductors of sensitive impressions in the spinal cord, but also that the gray matter is the principal channel for these impressions.

In the three preceding cases there is no mention of hyperæsthesia, although it must have existed on the side of the injury in the spinal cord; we shall find it mentioned in the following cases, and especially in the next one, which we give almost in full, on account of its extreme importance:—

CASE 32.—On the 4th of February, 1850, a man, æt. 58, was admitted into the St. Louis Hospital, in Professor Nélaton's ward, a short time after he had been wounded by a police officer. Besides a slight wound of the scalp, he had been wounded by a sword in his back. The point of the sword was eight millimeters large; there was a transversal wound about one centimeter and a half (half an inch) between the ninth and tenth dorsal vertebrae, and three centimeters (an inch) from the line of the spinous processes. A physician, who had seen the patient at once, had introduced a stylet in the wound, and ascertained that its direction was oblique from the right to the left, and a little upwards. The patient complains of slight pains only near the wound. The lower limbs are completely deprived of voluntary movements. The next morning a better examination is made; the patient has not slept; he has suffered violent pains, principally in the left lower limb; he feels a kind of burning and numb-

ness as if he were receiving electric shocks. The sensibility of the *left* lower limb is quite evidently increased. When a hand is simply applied upon this limb, the pains become very acute, and the very least pressure makes him shriek out. This morbid state of sensibility exists in the whole length of the limb, and also upon the left side of the sacrum and coccyx, and the upper and anterior part of the thigh. Higher up sensibility is normal. Even cold air, when the sheet is drawn down, causes pain in the left lower limb. Voluntary movements are impossible in all this limb, except in the toes, which may slightly move.

The *right* lower limb has a diminution of sensibility; the patient knows when he is touched, but when pricked with a pin he does not feel pain, and he does not distinguish a pressure by the finger from the pricking of a pin. In both cases he has only a sensation of contact. This limb is not deprived of movement as it was on the previous day. The flexion of the foot on the leg, and of the leg on the thigh, are executed; the movements are extensive, but the patient cannot altogether lift up his limb from the bed.

The temperature of the lower limbs is the same as that of the rest of the body, and there is no difference between them. All the organic functions are in a normal condition, except that there is a retention of urine and of the fecal matters. Voluntary movements and sensibility are not altered in the abdomen, and all the upper parts of the body. In the afternoon the hyperæsthesia has gone a little higher on the left side in the upper parts of the abdomen, and the genital organs have also become very sensitive. When a cloth that has been dipped into water at 30° (probably centigrade, 86° Fahr.), is applied to the left limb, the patient has a feeling of burning, which makes him cry out. When the cloth has been dipped into water at the low temperature of the room, the patient has a very acute feeling of cold.

On the right limb the wet cloth does not give either a sensation of warmth or cold, or of dampness or dryness, although he feels he is touched. The tickling of the right foot is not felt as tickling, and only as a *contact*. On the left foot tickling is exceedingly painful.

Gradually this patient became more and more able to move the right limb, and partly also the left limb. The hyperæsthesia diminished, particularly in the upper parts of the left limb; but the right limb became, for a time, unable to feel the contact of a hand, and if pricked there was a sensation, but the patient did not know its place. On the 20th of February, a slough was found on the right side of the sacrum; the patient had not felt anything there. In April, voluntary movements had returned in the two limbs, but sensibility was still deficient in the right one. On the 15th of June, the patient could walk with the help of a cane, and he left the hospital, not having yet, however, recovered entirely the power of feeling in his right limb.

Three years afterwards the patient was seen again, and he stated then that he was quite well, and that he could walk without difficulty or fatigue; but a year later, having walked a distance of many leagues he found a large scar, produced, he said, by the friction of his pants on his right knee; he had felt no pain, and was surprised when he found this wound. Although sensibility was still deficient in this limb, all its movements were executed freely, and without fatigue. (Viguès, in 'Moniteur des Hôpitaux,' Sept. 3d, 1855, p. 838.)

After the cases of alteration of a lateral half of the spinal cord, Dr. Brown-Séquard relates cases of alteration of a lateral half of the medulla oblongata, pons Varolii, &c., cases offering proof of the decussation of the conductors of sensitive impressions in the spinal cord from another point of view. This case is one of these, and a very important one:—

CASE 38.—S. G.—, æt. 28, was, on the 14th of May, suddenly seized with an acute pain in the right side of the head, and fell down in a state of insensibility, remaining so for twenty-four hours. On recovering, she found she had lost the power of moving her *left* arm, and, in a great degree, that of moving the leg of the same side. The right side was unaffected, except the face, the muscles of which were paralyzed; those of the left side of the face retained their power. Sensibility of the *left* side of the body was destroyed, and likewise that of the right side of the face. She could not hear with the right ear.

The right eye became inflamed several weeks before her death, and the cornea was slightly ulcerated; the upper eyelid was constantly raised. Her muttering was scarcely intelligible; paralysis of all the parts affected became complete; deglutition and mastication performed with great difficulty.

Autopsy, twelve hours after death.—A fibrous, semi-cartilaginous tumor was found on the right side of the tuber annulare and the medulla oblongata, seated in the substance of the dura mater and other membranes. It extended from the point where the fifth pair of nerves arises from the tuber annulare, covered the origin of this nerve and the whole of the right side of the tuber below this, and passed down along two-thirds of the medulla oblongata, and adhered to the right side of the basilar artery. The right vertebral artery was inclosed in the tumor, which was about two inches long. The surface of the root of the right crus cerebelli on which it pressed was softened, as was also that part of the tuber annulare on which it lay. It was incorporated with the substance of the right side of the medulla oblongata, and had produced softening as far as it reached. This softening extended through the posterior tract, but became less as it approached the posterior surface. The anterior tract was a pulpy mass. Neither the anterior nor the posterior tract of the left side was perceptibly affected. The tumor pressed upon the roots of the fifth, seventh, eighth, and ninth pairs of nerves. (S. Annan, in the 'American Journal of the Medical Sciences,' vol. ii. July, 1841, p. 105.)

Upon this case Dr. B. Séguard says:—

"We think that the case of Dr. Annan, if we take into account the extent of the injury in the medulla oblongata, bears out clearly that most if not all of the conductors of sensitive impressions from the trunk and limbs make their decussation in the spinal cord. But the importance of this case is not limited to this demonstration: it shows at once the radical difference between the symptoms of an alteration of a lateral half of the medulla oblongata above the crossing of the pyramids, and an alteration of a lateral half of the spinal cord either in the cervical or in another region. In this last case, as we have shown a moment ago, there is loss of movement in one side and loss of sensibility in the opposite side; while in a case of alteration above the crossing of the pyramids we find that the loss of movement and of sensibility are both in the opposite side. This case is also excellent to show that the functions attributed to the restiform body as a conductor of sensitive impressions, and to the cerebellum as either a centre of perception of these impressions, or as a regulator of our voluntary movements, or as a centre for the guiding sensation, whether by a reflex action or otherwise, are not performed by these parts, as the communication between the cerebellum and the right side of the body through the right side of the medulla oblongata was almost impossible, a small part of the right restiform body remaining, and sensibility and voluntary movements being preserved in this side."

Lecture VIII.—This lecture contains the conclusions to be drawn from the pathological cases related in the preceding lectures, as regards the diagnosis of alterations in the various parts in the spinal cord. Leaving aside the movements of the heart and lungs, the state of the sphincters, and of animal heat and nutrition, the groups of symptoms existing in disease of the spinal cord, according to the situation and extent of that disease, are thus summed up:—

"1st. *Deep alteration of the posterior columns in all their length.*—Increased sensibility in the trunk and limbs for impressions of touch, for those due to pricking, pinching, and galvanic excitations, and for changes of temperature (cold and heat). Loss, or a very great diminution, of reflex movements. All kinds of voluntary movements possible, and more or less easily executed when the patient is in bed. Walking and standing very difficult.*

* On account of the loss of reflex action, and of the morbid sensibility, and also on account of the alteration in the *guiding sensations* coming from muscles—an alteration which is due to two causes, one of which is the loss of action of some of these conductors altered in the posterior columns through which they pass before reaching the gray matter, while the other is the morbid increase of sensibility of those conductors which go directly into the gray matter.

"2d. *Deep alteration of the posterior columns in the extent of the cervico-brachial swelling.*—Increased sensibility in the four limbs, and in the trunk, for all kinds of impressions. Diminution of reflex actions in the upper limbs, and increased reflex actions in the lower limbs. Some difficulty in the direction of the movements of the upper limbs, without the help of the sight. Standing and walking possible without any great difficulty.

"3d. *Deep alteration of the posterior columns in the extent of the dorso-lumbar swelling.*—Increased sensibility in the lower limbs, and normal sensibility in the upper ones. Diminution or loss of reflex actions in the lower limbs. Movements of lower limbs possible, and even easy, when the patient is in bed; but walking and standing very difficult.

"4th. *Deep alteration of a very limited part of the posterior columns.*—Increased sensibility, and increased reflex action, in all parts receiving their nerves from the spinal cord below the alteration. Voluntary movements possible and easy everywhere. The place of the alteration may be detected by diminution of reflex actions in the zone round the body receiving nerves from the level of the part altered in the posterior columns.

"5th. *Alteration of the posterior columns and posterior roots of the spinal nerves.*—Instead of hyperæsthesia, as in the preceding cases, diminution or loss of all kinds of sensibility, in places receiving the spinal nerves, continuing the roots which are altered. Voluntary movements still possible in bed, and while the patient looks at his limbs, but walking and standing almost impossible. Reflex actions *completely* lost in all the anæsthetic parts. If the alterations are in the upper parts of the spinal cord, the other parts being healthy, then voluntary movements in the lower limbs, and even walking or standing, are possible, and may be easy, and these limbs have an increased sensibility and increased reflex actions.

"6th. *Alteration of the posterior columns and of the gray matter in all their length.*—There is no difference between this case and the preceding, except that here there is a real paralysis of voluntary movements, which is complete if the alteration extends to the anterior gray cornua. Greater frequency of formication and other sensations referred to the periphery.

"7th. *Alteration of the posterior columns and gray matter in any limited part of the spinal cord.*—Very nearly complete loss of sensibility. Degrees of paralysis of voluntary movements varying with the place occupied by the alteration in the length of the spinal cord. Reflex actions increased in parts receiving their nerves from the parts of the cord below the seat of the alteration.

"8th. *Alteration limited to the gray matter.*—The same symptoms as in the preceding cases, except that at first there is a greater degree of anæsthesia than of paralysis, if the alteration begins in the very centre of the cord. Formication and other sensations referred to the periphery, in cases of inflammation.

"9th. *Alteration of the anterior columns in the upper part of the cervical region.*—No paralysis, no anæsthesia, very slight hyperæsthesia, various sensations, particularly pain, referred to several parts of the body.

"10th. *Alteration of the lateral columns in the upper part of the cervical region.*—Paralysis of voluntary movements in the four limbs and the trunk. Increased sensibility and increased reflex actions in the paralyzed parts.

"11th. *Alteration of the anterior columns in any part of their length, except the neighborhood of the medulla oblongata.*—More or less complete paralysis of voluntary movements in all the parts receiving their nerves from or below the parts of the cord where the alteration exists. Slight hyperæsthesia. Reflex actions very much diminished in the parts which receive their nerves from the altered portion of the cord, and increased below these parts.

"12th. *Alteration of the lateral columns in any part of their length, except the neighborhood of the medulla oblongata.*—Incomplete paralysis of movements. Hyperæsthesia. Diminution of reflex actions less than in the preceding case.

"13th. *Alteration of the anterior half of the spinal cord, including the anterior columns, a good part of the gray matter, and a part of the lateral columns.*—Voluntary movements completely paralyzed. Sensibility very much diminished. For reflex actions, as in 11th.

"14th. *Alteration of the various parts of the spinal cord, except the posterior columnus.*—Loss of voluntary movements and of all kinds of sensibility. Reflex actions increased or diminished in certain parts of the body, according to the place of the alteration in the length of the spinal cord."

Lecture IX.—This lecture is on physiological and morbid actions due to the great sympathetic nerve. Respecting this nerve it is said—first, that it is essentially (though not exclusively) a motor nerve of bloodvessels; secondly, that it originates chiefly from the cerebro-spinal axis; thirdly, that its paralysis is characterized by a dilatation of bloodvessels and an afflux of blood, with the results of this afflux—increase of vital properties; fourthly, that its excitation, direct or reflex, is characterized by a contraction of bloodvessels, and the results of this contraction—decrease of vital properties.

An important question is proposed and answered in this lecture: it is—can we explain all the phenomena, normal and abnormal, which show the direct or the reflex influence of the nervous system on nutrition and secretion, by the above notions concerning the effects of paralysis or excitation of the sympathetic nerve on bloodvessels? "For several years," says our author, "I have felt inclined to admit the possibility of an explanation of these phenomena founded only upon these notions, but I must say, that facts discovered by Ludwig, by Czermak, and, especially, by Professor Bernard, seem to have solved the question in the most positive manner, and that it seems absolutely certain that there is some agency of the nervous system which is not simply an influence on the constricting muscular fibres of the bloodvessels, in the normal or pathological phenomena of nutrition and secretion. I must add, also, that the views held by the most eminent British physiologists (Mr. J. Paget, Dr. Carpenter, Dr. Todd, and others) have, by the discovery of the facts I allude to, received a sanction which, I confess, they needed. The principal amongst these facts, is the following: Instead of contracting, the bloodvessels of the salivary glands become enlarged, when certain nerves are excited. I think that this enlargement in the bloodvessels must be due to a greater attraction of the arterial blood by the tissue of the gland; and we explain this increased attraction by the production of the chemical interchanges between the secretory tissue and the blood, which are rendered manifest by the secretion of saliva then taking place.

"The researches of Czermak and of Professor Bernard tend to show that the increase in the salivary secretion does not depend on the sympathetic nerve, but on the lingual; and we have now, in this discovery, the explanation of this apparent contradiction: how can it be that the glands of the eye, of the ear, &c., secrete more when their bloodvessels are paralyzed and enlarged after the section of the sympathetic nerve, and that an increase in the secretion of the salivary and other glands is due to a nervous excitation? How can it be that, in one case, secretion is increased when the bloodvessels are dilated, and that in other cases it would be increased, while their vessels ought (according to what we thought) to be contracted? Bernard shows that, instead of being contracted, they are dilated; and, besides, the experiments of Czermak and Bernard show that the salivary secretion is arrested when the sympathetic nerve is excited; and we know that this nerve, when excited, has the same influence on the lachrymal and on the mucous glands of the eye and ear, &c.

"From this discussion we conclude that there are two kinds, at least, of immediate influences of the nervous system, either by a direct or by a reflex action, on nutrition and secretion, normal or pathologic. By one, which we see plainly when the cervical sympathetic nerve is excited, the bloodvessels contract, and there is a diminution of secretion and nutrition; by the other, the discovery of which is chiefly due to Professor Bernard, the bloodvessels dilate in consequence of a greater attraction for arterial blood developed in the tissues. Which of these two modes of action is the more frequent? and which is the most powerful in producing the normal and the morbid phenomena of nutrition and secretion?"

Lecture X.—This treats, at considerable length, of the influence of the nervous system upon nutrition, secretion, and animal heat; with remarks on the importance of the knowledge of this influence for the diagnosis and treatment of

disease. With respect to the supposed existence of a system of *excito-secretory* or *secretory* nerves, which has been recently claimed as a new discovery by Dr. H. F. Campbell, of Georgia, and by the late Dr. Marshall Hall, Dr. Brown-Séquard says—"that Dr. Campbell seems really to have been the first to introduce in science the hypothesis that there exists a secretory or excito-secretory system of nerves, but that neither he nor Dr. Hall has adduced a *single* fact to prove the existence of this pretended independent or distinct *system of nerves*. Both these physiologists seem not to have been aware that reflex secretions and reflex changes in nutrition were perfectly known, and that the question was, not to prove that there are such reflex phenomena, but whether they are to be explained by a reflex influence on bloodvessels or otherwise. Any one desirous to know the state of science, in this respect, before the first publication of Dr. Campbell, will find, easily, that it was more advanced than in the last paper of this able physiologist, in Müller's 'Manual of Physiology' (2d German edition, 1837), in Stilling's treatise on 'Spinal Irritation' (1840), and in several works of Henle published in 1840 and 1841. Since that time there has been no treatise on Physiology or General Pathology, and no paper nor other work on Inflammation, that does not speak of reflex phenomena of nutrition or secretion as of something well known."

Lecture XI.—This lecture is upon the etiology, nature, and treatment of epilepsy, with a few remarks on some other affections of a similar character. It is a short summary of the author's separate work on epilepsy, which will be found noticed in the next article.

Lecture XII.—This lecture, which is not yet printed, is upon the medulla oblongata, the pons-Varolii, and some parts of the spinal cord, in their relations with respiratory movements, with vertiginous or rotatory convulsions, with the transmission of sensitive impressions and of the orders of the will to the muscles, and with the vaso-motor nerves and animal heat.

Researches on Epilepsy; its artificial production in animals, and its etiology, nature, and treatment in man. First part of a new series of experimental and clinical researches applied to physiology and pathology. By E. BROWN-SÉQUARD. (8vo., Boston, David Clapp, 1857, pp. 82.)

Eight years ago, Dr. Brown-Séquard discovered that certain injuries of the spinal cord in mammals, and particularly in guinea-pigs, were followed by a convulsive affection resembling epilepsy. This strange result was brought about by a complete transversal section of a lateral half of this organ—a transversal section of the two posterior columns, of the posterior cornua of gray matter, and of a part of the lateral columns—a transversal section of either the posterior or lateral or anterior columns simply—a complete transversal section of the entire organ—a simple puncture. The convulsive affection was produced with most certainty when the part injured was situated between the seventh or eighth dorsal and the third lumbar vertebra; the time at which it was produced was generally in the course of the third or fourth week after the injury.

At first the spasms are limited to the face and neck, but in a few days they might extend, and usually did extend, to all the non-paralyzed parts—even to the intestine, bladder, and seminal vesicles. Sometimes the fit is ushered in by a cry. Usually the consciousness is annihilated during the fit, but occasionally the animal will cry at this time when it is irritated. Usually the fits occur in series, each paroxysm lasting two or three minutes, and the intervals between one and another being of about the same length. Generally the convulsions are followed by more or less drowsiness. Generally, also, the respiration is greatly impeded, and in the height of the paroxysm the lips and tongue are quite blue.

These convulsions may come on either spontaneously or after certain excitations. They come on when the breathing is arrested for a very short time—much shorter than in an uninjured animal of the same kind. They come on also (and this is perhaps the most curious part of the discovery) upon pinching the skin in certain parts of the face and neck. These parts are on the

same side as that on which the spinal cord has been injured, and if the cord has been cut through entirely they are on both sides. "No other part of the body but a portion of the face and neck has this faculty. In the face, the parts of the skin animated by the ophthalmic nerve cannot cause the fits; and of the two other branches of the trigeminal nerve, only a few filaments have the property of producing convulsions. Among these filaments, the most powerful in this respect seem to be some of those of the sub-orbital and of the auriculo-temporalis. A few filaments of the second, and perhaps of the third cervical nerve, have also the property of producing fits. In the face the following parts may be irritated without inducing a fit: the nostrils, the lips, the ears, the skin of the forehead and that of the head. In the neck there is the same negative result when an irritation is brought upon the parts in the neighborhood of the median line, either in front or behind. On the contrary, a fit always follows an irritation of some violence, when it is made in any part of a zone limited by the four following lines: one uniting the ear to the eye; a second from the eye to the middle of the length of the inferior maxillary bone; a third, which unites the inferior extremity of the second line to the angle of the inferior jaw; and a fourth, which forms half a circle from this angle to the ear, with the convexity approaching the shoulder" (p. 6).

It is in the cutaneous ramifications of the nerves belonging to this part, and not in the trunks of these nerves, that this curious faculty of producing convulsion belongs. If the trunks of these nerves be laid bare and irritated, there is no result, but a very slight irritation is sufficient to bring about an attack when it is applied to the extremities of these nerves. What the nature of the change in these nerves may be is not very apparent. It is not increased sensibility to pain, for, after a fit, it is easy to see that there is no such increased sensibility. Besides, if this were the cause, it is to be expected that a fit would be brought on (which is not the case) by irritating a part which is at first in a very exalted state of hyperæsthesia, and that is the hind limb on the side upon which the spinal cord has been cut through. Dr. Brown-Séquard is of opinion that the change which has passed over the nerves of the part in question, is confined to those twigs which minister simply to reflex movements—to twigs which have no concern with ordinary and appreciable sensations; and that the quasi-sensation which is propagated from the ramifications of the nerves to the nervous centres in causing the fit is analogous to the *aura epileptica*; but, be the explanation what it may, the fact remains. It is, also, a fact, which has yet to receive its explanation, that the part in question is very much infested with lice. It would even seem as if these creatures left the rest of the body in order to congregate there. It would seem also as if the part were somewhat more vascular than usual, though this may be an effect of the pinching to which it is subjected.

These facts lead to many interesting conclusions. 1st. They give a positive proof that an injury to the spinal cord may be the cause of an epileptiform affection. 2d. They point out the existence of a very curious relation between certain parts of the spinal cord and certain branches of some of the nerves of the face and neck. 3d. They show that epileptiform convulsions may be the constant consequence of slight irritation upon certain nerves. 4th. They show that in an epileptiform affection, even when it has its primitive cause in the nervous centres, some cutaneous ramifications of nerves, not directly connected with the injured parts of these centres, have a power of producing convulsions, which other nerves, even directly connected with these centres, have not. And 5th. They show that the cutaneous ramifications of certain nerves may have the power of producing convulsions, while the trunks of these nerves have not this power.

—After stating these facts, Dr. Brown-Séquard proceeds to use them as an additional argument for supposing that epilepsy may originate from alterations of the spinal cord, and then he adduces a considerable amount of clinical evidence as to the frequent existence of such alterations in epilepsy. He does not hold, however, that the spinal cord is the exclusive seat of the disease. On the contrary, he tries to show that the disease may originate in any part of the nervous system. In reviewing the symptoms, also, he shows that no single

symptom belongs exclusively to epilepsy connected with disease of the brain, or with disease of the spinal cord, or with disease of a nerve, and that the existence of the aura epileptica is no proof that the primitive cause of the disease is in some cutaneous nerve, and not elsewhere. Thus, in the case of the epileptic animal, it might be supposed that the primitive cause of the disease was in the nerves ramifying upon and near the angle of the jaw, if it were not known that there was beyond and before this a central cause of mischief in the spinal cord.

From what occurs in animals after an injury to the spinal cord, and from some cases observed in man (some of which cases are cited) Dr. Brown-Séquard infers there is not unfrequently in epileptic patients some particular spot the irritation of which will give rise to a fit. This irritation may not be attended by any positive sensation, and it may be difficult to find, but when it is found, the object of treatment will be to prevent the transmission of the irritation from it to the nervous centres by ligatures, by section of the nerves, by cauterization, and so on. Great stress, indeed, is laid upon the aura epileptica, and this phenomenon is raised from the grade of a symptom to that of a cause. The aura is indeed looked upon as identical with that impression which is transmitted from the neighborhood of the angle of the jaw in the epileptic guinea-pigs, and because the fits of these animals may often be prevented by dividing the nerves proceeding from this spot, or by cauterizing their extremities, it is thought to be of great importance to interrupt the course of the aura by ligatures, or by dividing the nerves, or else to destroy it in its source by cauterizing the extremities of these nerves. And several cases are cited from various authors, in which epilepsy would seem to have been relieved or cured in this manner.

Then, after devoting several pages to a critical examination of several theories of epilepsy Dr. Brown-Séquard proceeds to state his own views respecting some of the principal questions in connection with the theory of epilepsy.

The brain, he shows, is not essential to the production of epileptiform convulsions, nor yet the cerebellum. He shows this by experiment upon his epileptic animals, for convulsions were still produced (though weaker—probably from the loss of blood) by pinching the neighborhood of the angle of the jaw, after removing the whole of the encephalon except the medulla oblongata and pons Varolii. There are, he thinks, three distinct elements wanting for the production of a fit:—

“1st. Increase of the *force* of the reflex property.

“2d. Increase of the *excitability* of this property.

“3d. An excitation of a special nature, or a very violent one” (p. 59).

The paleness of the face, which, according to Drs. Delasiauve, Trousseau, and Radeliffe, is a primary phenomenon in the fit, is used as a key by which the remaining phenomena are accounted for. “After Claude Bernard had discovered that the section of the cervical sympathetic nerve is followed by a dilatation of the bloodvessels of the face, I found,” says Dr. Brown-Séquard, “that when this nerve is irritated by galvanism, there is a contraction of these bloodvessels, and I explained the facts discovered by the eminent French physiologist and myself by considering the sympathetic as the motor nerve of the bloodvessels of the face. I found also that the branches of the sympathetic nerve which animate the bloodvessels of the face originate from the spinal cord, with the branches of the same nerve going to the iris. The theory I then proposed has been almost universally admitted. We have in this theory an easy means of explaining the paleness of the face in epilepsy. When the excitation takes place in the spinal cord and in the base of the encephalon, which gives rise to the fit, the nerve-fibres which go to the head are irritated, and produce a contraction of its bloodvessels. Of course this contraction expels the blood, and, in consequence, the face becomes pale. Very often another effect, depending on the nerve-fibres of the cervical sympathetic, is produced—the dilatation of the pupil. But the reverse sometimes takes place—a contraction of the pupil occurring instead of a dilatation. This last phenomenon is easily explained by admitting that the excitation in the nervous centres takes place near the

origin of the third and fifth pair of nerves, and not of that of the cervical sympathetic, as in the case where that pupil dilates." (pp. 61, 62.) * * *

"We think that at nearly the same time when the origin of the branches of the sympathetic nerve going to the bloodvessels of the face receive an irritation in the beginning of a fit of epilepsy, the origin of the branches of the same and of other nerves, going to the bloodvessels of the brain proper, also receive an irritation. A contraction then occurs in these bloodvessels, and particularly in the small arteries. This contraction expelling the blood, the brain proper loses at once its functions, just as it does in a complete syncope. Now, as it has been well proved by the researches of Kellie, of Abercrombie, of John Reid, of Henle, and of Foltz, that the quantity of liquid in the cranio-spinal cavity cannot change suddenly, it results, that if there is less blood in the brain proper, there must be more in the basis of the encephalon and in the spinal cord. In consequence of the impediment to respiration, the blood sent to the encephalon, as well as to other parts of the body, contains but little oxygen, and is charged with carbonic acid, so that the large quantity of blood accumulated in the basis of the encephalon (the medulla oblongata, the pons Varolii, the tubercula quadrigemina, &c.) and in the spinal cord, is endowed in a high degree with the power which I have shown that such blood possesses, *i. e.*, to excite convulsions. It may be, as Henle has supposed, that the basis of the encephalon is also excited to cause convulsions in consequence of the pressure exerted upon it by the accumulation of blood. The spinal cord, also, in all its length, is then excited to produce convulsions by the blood which circulates in it." (pp. 62, 63.)

Again: "In the same way as there are *certain* muscles that contract in the neck, in the larynx, and elsewhere, we may admit that there are *certain* bloodvessels that contract either in some parts of the brain proper or in the nervous portions of the organs of sense, and, in consequence, there is a trouble or loss of either one or several senses, or of the intellectual faculties, consciousness remaining more or less entire; or there is a successive loss of sight, of hearing, of the intellectual faculties, and, last of all, of consciousness." (p. 66.)

The augmentation of the reflex excitability, which is regarded as a principal element in epilepsy, is looked upon as the direct effect of the increased nutrition of the nervous centres concerned, and this increased nutrition is thus accounted for: "An excitation on some part of the nervous system causes a contraction of the small bloodvessels of a part of the cerebro-spinal axis, and as the same quantity of blood still arrives by the various arteries in the cerebro-spinal cavity, it results that if the small ramifications of some arterial branches are contracted, the others receive more blood, so that nutrition, and, in consequence, the reflex excitability, augment in the parts to which they are distributed. But this is not likely to be the most frequent mode of increase of nutrition. We have found that when a vascular nerve is excited for a long while, the contraction of the bloodvessels after a certain time ceases, and a dilatation takes place, which lasts longer than the contraction, though the nerve is still excited; this is paralysis by excess of action. In the nervous centres very likely this paralysis of the bloodvessels supervenes also after considerable contraction, and, in consequence of this paralysis, nutrition is increased in the parts of these centres where it exists, as we have found that nutrition is increased in the nerves and muscles of the face, when the bloodvessels are paralyzed." (p. 69.)

With respect to the *treatment* of epilepsy, only a few propositions are laid down. The first thing is to find out whether the origin of the disease is peripheral; and if it is, then proper means are to be employed to separate the point of origin from the nervous centres (ligatures, laying bare the nerve and etherizing it, or, if this fails, dividing it), or else to eradicate the point of origin by various modes of cauterization. "The best means of treating epilepsy seem to consist in the application of a series of moxas along the spine, and particularly the nape of the neck." Again: "The nutrition of the nervous centres may be modified, and thereby epilepsy be cured, principally by medicines which act on the bloodvessels, such as strychnia, but particularly by those which determine contraction in those vessels, such as atropia, ergot of rye, &c."

Canterization of the mucous membrane of the larynx is spoken of as an excellent means, not only of counteracting spasm in the larynx, but of modifying the nutrition of the medulla oblongata. As a means of cure, also, Dr. Brown-Séquard thinks "it would be of the utmost importance to have fever and ague generated in epileptics." Why, he does not very clearly explain (p. 82). And lastly, hygienic means are regarded as of equal importance to medicines, and it is laid down that sleeplessness is to be combated as uncompromisingly as the disease itself. In order to shorten the fit, and in this way diminish the dangers resulting from the circulation of black blood in the nervous centres, the best means are said to be—dashing cold water in the face, and the inhalation of chloroform.

—Such is the gist of this very remarkable and very important book—a book which is a mine in which physiologists and pathologists may dig for years to come without exhausting it of its rich materials.

On Epileptiform Convulsions after bleeding, and upon Epileptic Convulsions generally. By Professor KUSSMAUL and TENNER. ('Untersuch. z. Naturlehre der Mensch u. d. Thiere,' von J. Moleschott, 2d vol., Frankfurt, 1857.)

In this memoir the authors endeavor to interpret some of the principal phenomena of epileptic and epileptiform convulsions, and the conclusions at which they arrive are of very great importance. In several points the authors trench very closely upon grounds already occupied by Drs. Brown-Séquard, Radcliff, and others, but they do not appear to have been aware of this fact. The conclusions themselves, which are based in many instances upon original experiments, are as follows:—

1. The convulsions which are produced by bleeding in man and warm-blooded animals generally, are similar to those which happen in epilepsy.
2. Convulsions of the same kind are produced when the supply of red blood to the brain is suddenly cut off by tying the arteries in the neck.
3. Epileptiform convulsions are also produced when arterial blood acquires a venous character, as after placing a ligature around the windpipe.
4. It is extremely probable that the convulsions are produced in these several cases by some sudden interruption to the nutrition of the brain, and not by any mere change in the pressure proceeding from the bloodvessels.
5. The epileptiform convulsions, produced by hemorrhage, do not proceed from the spinal cord.
6. Nor do they proceed from the great encephalic masses.
7. They proceed rather from the excitable portions of the brain which lie behind the optic thalami.
8. Anæmia of those parts of the brain which are anterior to the crura cerebri in man gives rise to loss of consciousness, insensibility, and paralysis; and if convulsions are superadded, there must be some change in the excitable parts which lie behind the optic thalami.
9. Anæmia of the spinal cord gives rise to paralysis of the limbs and chest and neck, and occasionally, but not frequently, if the blood is abstracted suddenly, the paralysis is preceded by tremulous movements in the limbs.
10. The convulsions of hemorrhage are not due to a moral cause, nor are they the effect of reflex action.
11. Hemorrhage is not attended by convulsions in cold-blooded animals (at least not in frogs), or in cases where the blood is abstracted very slowly, or in very feeble animals, or in cases where the nutrition of the spinal cord has suffered, or where large portions of the brain have been removed, or in etherized animals, or, in some cases, where the excitable portions of the brain have become diseased in certain ways.
12. Etherization hinders the outbreak of convulsions in asphyxia; consequently the state of etherization and asphyxia must be considered as in some degree antagonistic.
13. The brain of warm-blooded animals very soon loses the power of resuming its vital action when the supply of arterial blood is cut off, and in this way apparent death rapidly changed into actual death. In a rabbit the sup-

ply of arterial blood may be cut off from the brain for two minutes without killing the animal, but not for a longer time.

14. After tying the arteries of the neck it sometimes happens that *rigor mortis* seizes upon the muscles of the trunk and limbs, before the irritability of the left side of the heart is at an end, and therefore, the left heart cannot be regarded as the *primum moriens* among the muscles.

15. Contraction of the pupils followed by extreme dilatation in the mortal agony is not, as Bouchut believes, a certain sign that life cannot be prolonged.

16. The return of red blood is the best cure for convulsions which have been produced by hemorrhage.

17. Antiphlogistic measures, and especially bleeding, ought never to be employed in the treatment of epilepsy.

18. It can be demonstrated by experiment, that the quantity of blood within the skull of living animals is capable of considerable variation.

19. The quantity of blood within the skull is increased when the arterial stream is allowed to return by the removal of ligatures from the great arteries of the neck (arterial congestion); when the veins of the neck are tied (venous congestion); when the cervical prolongations of the sympathetic are divided (arterial and venous congestion); and when the trachea is tied during inspiration (venous congestion in asphyxia).

20. The quantity of blood within the skull is diminished by hemorrhage, by tying the cervical arteries (passive anæmia), as well as by irritating with galvanism the vaso-motor nerves of the head (active anæmia).

21. There is more blood within the skull after tying the arteries than after hemorrhage. The diminution in the quantity of blood is observed equally in the small arteries and veins and in the capillaries.

22. It is seldom possible after death to draw a just conclusion as to the quantity of blood contained within the skull, for the circulation is modified by many circumstances which act during the agony, and even after death.

23. The phenomena of the *petit mal* derive their origin from changes in the brain proper; those of the *grand mal* from alterations in the entire encephalon. The convulsions of epilepsy are, with justice, referred to the brain; and the spinal cord, in all probability, has only to play the part of a conductor in respect to them.

24. The anatomical changes in the brain, to which attention has been directed, can only be regarded as predisposing causes of epilepsy. Certainly they are not proximate causes.

25. Pathological anatomy conducts us to no conclusion with respect to the nature of epilepsy.

26. The sudden alteration of nutrition in the brain, to which the attack may be referred, is only manifested at the moment of the attack.

27. Arterial congestion of the brain does not appear to cause other than the phenomena of paralysis (vertigo and apoplexy).

28. Venous congestion of the brain, like arterial and venous congestion, gives rise to a condition in which epileptiform phenomena precedes the apoplectic—a condition in which the glottis is paralyzed, and the respiration considerably retarded.

29. It is not the sphagismus or trachelismus of M. Hall, to which the epileptic convulsion can be referred, but rather the laryngismus. Every theory which refers the convulsion to a sudden afflux of blood, whether active, passive or mixed, is false.

30. In all probability there are certain forms of epilepsy which are confined to convulsive movements in the muscular walls of the cerebral vessels.

31. The condition which predisposes to the epileptic attack is met with, sometimes in the encephalon as a whole, sometimes in a part of this organ only.

32. The medulla oblongata, inasmuch as it is the point of origin of the constrictor nerves of the glottis, and of the vaso-motor nerves, would seem to be the most ordinary source of mischief in epileptic and convulsive attacks.

Epilepsy and other convulsive affections, their pathology and treatment. By C. B. RADCLIFFE, M. D., F. R. C. P., Physician to the Westminster Hospital, &c. (Second edition, revised and enlarged, post 8vo., London, Churchill, 1856, pp. 383.)

As in the former edition of this work, the author introduces the remarks he has to make upon epilepsy and other convulsive disorders by certain considerations respecting the physiology of muscular motion. In these considerations he endeavors to establish three propositions, viz:—

1. That muscular contraction is not produced by the stimulation of any property of contractility belonging to muscle.
2. That muscular elongation is produced by the simple physical action of certain agents, electricity and others, and that muscular contraction is the simple physical consequence of the cessation of this action.
3. That the special muscular movements which are concerned in carrying on the circulation—the rhythm of the heart, and the movements of the vessels which are independent of the heart—are susceptible of a physical explanation when they are interpreted upon the previous view of muscular action.

In establishing these propositions the former line of argument is greatly changed, and much new matter is introduced.

— In treating of epilepsy and other convulsive affections, the author does not propose to enter into every part of the subject. On the contrary, he passes by several topics of considerable interest in themselves, but only of secondary importance in the argument, because he does not wish to divert attention from the main object he has in view, which is, to point out the necessity for a fundamental change in the pathology and treatment of the disorders under consideration—a change which is altogether in accordance with that which would seem to be demanded by the physiology of muscular action.

Dr. Radcliffe looks upon epilepsy as the great type of convulsive disorders, and the key to their interpretation. Epilepsy is, however (he tells us), a name which indicates much less than it did formerly. Thus, it does not indicate the epileptiform convulsion which is connected with certain positive diseases of the brain, with fever, with certain suppressed excretions, with "irritation" in the gums and elsewhere, or with the moribund state; and it is difficult to say what it does indicate, for as our diagnosis gains in exactness, epilepsy changes more and more from a special malady into a mere symptom. At the same time, it is, and in all probability it always will be, convenient to take an ideal form of epilepsy and regard it as a special malady, for there are, and ever must be, numberless cases in which, in their earliest stages at least, it will be very difficult, if not impossible, to recognize the disease of which the convulsion is merely a symptom.

Passing from this ideal form of epilepsy to the consideration of the actual disorders in which muscular contraction is in excess, the author divides these disorders into three categories, of which the distinctive signs are tremor, convulsion, and spasm.

In the first category, where tremor is the distinctive sign, he considers the tremors of delicate and aged persons, of paralysis agitans, of delirium tremens, the rigors and subsultus of fevers, and the tremblings of slow mercurial poisoning.

In the second category, of which convulsion is the distinctive feature, a division into two sections is made by the presence or absence of consciousness during the convulsion. Where consciousness is present, the convulsion is spoken of as simple; where it is absent, as epileptiform. Under simple convulsion he considers the convulsion which is met with in hysteria, chorea, and in those strange affections which take an intermediate position between the two, as the dance of St. Vitus and St. John, tarantism, and other affections of the kind. Under epileptiform convulsion he considers the convulsion connected with certain diseases of the brain—chronic softening, chronic meningitis, tumor, induration, hypertrophy, atrophy, congestion, apoplexy, inflammation—with fever, with certain suppressed excretions, with "irritation" in the gums and elsewhere, and with the moribund state.

In the third category, of which spasm is the distinctive feature, he considers catalepsy, tetanus, cholera, hydrophobia, ergotism, the rigidity of cerebral paralysis, the spasm connected with certain diseases of the spinal cord, and some other spasms of a minor character.

— In succession, the history of these several affections is carefully examined, and consequently, many things are added which have no place in the first edition. As with the considerations respecting muscular motion, the whole argument has been reconsidered, rewritten, and greatly amplified, and the work is offered to the reader rather as a new book than a second edition.

On malformations of the Human Heart, with original cases. By T. B. PEACOCK, M. D., F. R. C. P., Assistant-Physician to St. Thomas's Hospital. (Churchill, 8vo., pp. 143, 1858.)

The subjects treated of in this important essay are: congenital misplacements of the heart, deficiency of the pericardium, malformations, the mode of formation, the symptoms and effects, the diagnosis, and medical management. The malformations include those which are dependent on arrest of development at an early period of fetal life, those which prevent the changes which should ensue after birth, those which do not interfere with the functions of the heart but may lay the foundations of disease in after-life, and, lastly, those which consist in the irregular development of the primary vessels. Dr. Peacock does not allude to those forms of defect in the development of the heart which are incompatible with extra-uterine life, or which have only been met with in the lower animals. The essay, which is of much practical as well as literary value, is based upon 153 cases, six of them original, of various forms of decided and important malformation. Its practical value will be best tested, perhaps, by the following remarks upon the diagnosis:—

"The detection of the existence of malformation of the heart in ordinary cases, when the patient is seen early in life, can scarcely present any difficulty. The statement that palpitation, dyspnoea, and more or less cyanosis, had existed since birth, or shortly after, and the evidences of obstructed circulation at the time of examination, render the case sufficiently clear. M. Louis, indeed, regards the occurrence of 'suffocative attacks brought on by the slightest cause, often periodic, and always very frequent, and accompanied or followed by syncope, and with or without the blue discoloration of the body generally,' as pathognomonic of communications between the right and left cavities of the heart; and the cyanotic discoloration, when present, can scarcely be mistaken. But the ordinary symptoms may be absent, or may exist only to a slight degree, or the patient may not be seen till after he has attained the age of puberty or manhood, and there may be no satisfactory history of his previous state of health to aid the diagnosis. Though, in cases of this kind, if the patients had been under medical care, it is quite possible that sufficiently characteristic signs might have been observed, we are sometimes assured by the patient and his friends that he had enjoyed good health, had been capable of following a laborious occupation, and had presented nothing unusual in his appearance, until shortly before the time at which he falls under our notice. In such cases, then, it may be extremely difficult to decide whether the patient labors under some form of malformation, or under ordinary disease of the heart; and the differential diagnosis can only be effected by a careful examination and analysis of the general symptoms and physical signs.

"In all cases, also, the detection of the precise form of malformation must be a task of considerable difficulty, and in some instances entirely impracticable. Where an infant suffers from great difficulty of breathing and palpitation, and is intensely and constantly cyanosed, at or immediately after birth, it may be inferred that it labors under some serious malformation occasioning great obstruction to the circulation of the blood, as obliteration or great contraction of the pulmonic orifice, or transposition of the aorta and pulmonary artery. On the contrary, when the symptoms do not manifest themselves at so early a period, and are less constant and intense, there is probably only some slighter malformation, as a moderate amount of contraction at the pulmonary orifice.

Of 143 cases of various forms of decided and important malformation, of which I have collected notes, in 74 there existed more or less contraction of the orifice of the pulmonary artery, or other sources of obstruction to the exit of the blood from the right ventricle, and in 25 others the orifice or trunk of the vessel was obliterated. In those patients who survived the age of twelve, the entrance of the blood into the pulmonary artery was interfered with in a much larger proportion of cases, or in 32 out of 39; so that, in any given case of malformation, especially after the age of fifteen, the probability is that the pulmonary artery is contracted. If this be the case, a loud systolic murmur will be heard in the præcordial region, and most intensely at the level of the nipple, and between that body and the sternum. It will be audible very distinctly in the course of the pulmonary artery, or from the base of the heart towards the middle of the left clavicle; and less distinctly in the course of the aorta, or at the upper part and right side of the sternum. If the pulmonic orifice be permanently open, as is often the case, especially where the whole of the valves are united, there may also be a diastolic murmur; but, from the very small size of the aperture in most instances, the regurgitant current is probably generally too slight to generate a distinct murmur. Most usually with considerable contraction of the pulmonary orifice, the septum of the ventricles is defective, and the aorta derives its supply of blood from both ventricles; and, if so, a systolic murmur may probably be produced by the meeting of the two columns of blood in the ascending aorta, which may modify the signs observed. Generally, in such cases, the aorta is unusually large, and, from the powerful reaction on the valves during the diastole of the heart, a loud ringing second sound is heard on listening at the upper part of the sternum. With these signs there will also be perceived those of hypertrophy and dilatation of the right ventricle and auricle, and frequently a distinct jugular pulsation will be observed. The heart being much increased in size, and its walls hypertrophied, the dull space will be extended beyond its usual limits, especially towards the right side. From the yielding of the parietes in early life, the præcordia is also generally prominent. The impulse of the heart is usually powerful, and frequently a distinct purring tremor may be felt over the situation of the pulmonic orifice. The pulse is generally quick, small, and weak. It has been thought that, in cases of obstruction at the right side of the heart, the patient is disposed to let the head hang down so as to compress the chest, rather than to adopt the upright position, which we most frequently see selected by patients with disease of the left orifices; but I have seen patients with aortic disease hang themselves completely over the side of the bed, so that this rule does not certainly apply.

"If the evidence of obstruction at the pulmonic orifice be tolerably conclusive, we may safely infer that there is either a deficiency in the septum of the ventricles, or a patent foramen ovale, for one or other of these defects almost invariably coexists with that condition. An aperture in the septum of the ventricles, without other malformation, would probably be attended by a murmur, caused by the flow of blood through the abnormal opening from the left ventricle into the right ventricle or auricle. The detection, therefore, of a systolic murmur at the base of the heart, without signs of obstruction at the aortic or pulmonic orifice, might lead to a suspicion that such a communication existed. This surmise would be strengthened if the murmur were not propagated in the course of the pulmonary artery or aorta; and especially if the patient were long under notice, and constantly presented the sign, without other evidence of cardiac disease or defect; and without having had any disease or accident during life which could probably have produced such a change in the heart as would be likely to be attended by a permanent murmur.

"I do not know that there are any means of detecting the open state of the foramen ovale; and there are also other malformations of the heart, such as transposition of the aorta and pulmonary artery, which could not be at all diagnosed during life.

"In some cases, as where the ductus arteriosus or foramen ovale remains open, the diagnosis may be aided by ascertaining whether the infant has been born prematurely, or at the full period.

"It has already been mentioned that the malformations of the valves do not

necessarily entail any interference with the functions of the heart. When they lead to disease of the organ, the symptoms and physical signs will be those of valvular disease dependent on any other cause. I believe that when a patient in early or adult life labors under symptoms of valvular disease, more especially at the aortic orifice, without having previously sustained any severe injury or strain, and without having had any serious rheumatic attack, we shall generally be correct in inferring that the valves are malformed."

On Dropsy connected with Disease of the Kidneys (Morbus Brightii), and on some other diseases of these organs associated with albuminous and purulent Urine: illustrated by numerous Drawings from the Microscope. By W. R. BASHAM, M. D., F. R. C. P., Physician to the Westminster Hospital. (London, Churchill, 8vo. p. 241, 1858.)

"The microscope as an instrument of investigation," says Dr. Basham in his opening sentence, "should be to diseases of the kidney what the stethoscope is to diseases of the lungs. The ear detects, by the aid of the one, the alteration of the sounds of respiration induced by disease; the eye, assisted by the other, sees in the urine materials and products thrown off from the kidneys, which, when carefully studied, become safe and reliable exponents both of the nature of the disease, and of its advance and decline."

The question then is—can the microscope do this? Can it clear up these most important questions in diagnosis and prognosis? The answer of Dr. Basham is unhesitating, and that answer is, we think, unimpeachable—if *can*. The answer, moreover, is one which every one for himself, with an ordinary instrument and with ordinary skill in its use, may hope to attain to, and that easily.

Dr. Basham is of opinion that neither the estimation of the amount of albumen, nor the weight of the solid constituents of the urine, will supply the requisite data on which reliance can be placed for deciding with any degree of certainty as to the stage at which the renal disorder has arrived, or as to the rate at which it is progressing or receding.

"I freely confess," he says, "to great scepticism of the practical value (its relation to treatment) of minute attention to the specific gravity of the urine, from which some authors have sought to deduce the amount of solids daily excreted by the kidneys. Independent of circumstances which combine to make me doubt the efficiency of the ordinary method in use, by urinometer, for determining with anything like accuracy the specific gravity of the urine, I am inclined to advance one step farther in heterodoxy, and express my opinion that the specific gravity of the urine, however accurately obtained, must fail to afford any very certain or satisfactory information in relation to the progress of renal disease. There is no animal fluid subject to such hourly variation in regard to its density as the urine; so that unless all the urine of the twenty-four hours be collected no truthful result could be obtained. But even when this is done, no practical inference of any importance is obtained; for the specific gravity of the urine, both in health and disease, will vary one day with another, influenced by a variety of extraneous circumstances; the temperature, the density of the atmosphere, its hygrometric condition, the quality of the food, the quantity of fluid drunk, the activity or torpidity of the alvine functions, the amount and nature of the exercise of the body generally; these will severally influence the density of the urine. It appears almost certain that this great variation in the specific gravity of the urine is imperatively needed, that the blood may be maintained at a definite and fixed density. Physiologically, it is easily conceived what irregularity and disturbance of function would everywhere ensue if the blood were continuously undergoing variations in its degree of concentration which must occur under the varying circumstances just enumerated, if the kidneys were not, according to the vital requirements perpetually engaged in regulating and maintaining the necessary equilibrium in the density of the circulating fluid. It is only thus that the endless variability in the specific gravity of the urine can be explained, or that we can account for the excess of saline constituents and urea at one period,

and their absolute decrease with a positive augmentation of water excreted at another. If these variations be thus infinite in health, how much more irregular and ill defined may they not be in disease. An estimation, therefore, of the specific gravity of the urine leads to no practical result; the information it conveys has no absolute value, for from the density of the urine, as an isolated fact, no inference or conclusion in relation to prognosis or treatment can be drawn. It is not intended by these observations to declare that the density of the urine should not be taken into the account, when we are recording *all* the qualities of the urine, physical, chemical, and morphological, with the view of describing the conditions of this fluid significant of disease. It is only asserted that the specific gravity of the urine as an individual property affords of itself no trustworthy information either in relation to the progress of the disease or the success of the treatment. I do not forget that a pale lemon-colored albuminous urine of low specific gravity indicates a stage of disease very different from what is inferred from urine deep-colored, albuminous, and of high specific gravity. But these opposite states of concentration teach less than the microscopic appearances accompanying these different densities; and it is from these microscopic appearances that in reality we obtain the information we seek.

"The instrument ordinarily employed for taking the specific gravity of the urine—the urinometer—affords but the rudest approximation to the true specific gravity; where the object is only to ascertain if the urine be of *high* or *low* specific gravity, a watery urine, or a fluid highly charged with organic urinary products, this little instrument affords sufficient information; but if the true specific gravity be required with the intention of drawing conclusions from any daily alteration in the amount of solids dissolved in the urine, as for instance in a case of diabetes, when the object is to ascertain the increase or decrease in the amount of sugar present, then no reliance whatever can be placed on this instrument for any minute differences of specific weight. An accurate balance, and the thousand-grain bottle can alone be relied on. The urinometer has its index scale secured in the tube of the upper limb of the instrument with the sealing-wax. This often happens, the index gets slightly displaced, and the instrument is useless. I have known such an instrument in use, and the displacement not discovered till repeated discrepancies between its results and those obtained by the balance led to a detection of the error. These instruments should never be washed in warm water; the finger should never be applied over the red spot where the index is secured; and they should be carefully kept in a cool place in the summer time. I have reason to think that the displacement of the index just mentioned was occasioned by the instrument being kept usually on a window-sill daily heated by the sun.

"Lehmann has shown that the formulæ given for calculating the solid constituents of the urine from the specific gravity of this fluid are inapplicable and erroneous. 'It was supposed that the residue of the urine might readily be determined from its specific gravity, and for this purpose F. Simon, Becquerel, and G. Bird have attempted to establish formulæ from which, when the specific gravity was given, the solid residue of the urine might be determined. The complete inapplicability of such formulæ, which I have shown by my own experiments, has recently been most completely demonstrated in a large number of investigations made by Chambert on the urine of healthy persons. These experiments prove that there does not even exist any definite proportion between the quantity of salts in the urine and its density, and much less that any such connection exists between the organic matters and the density of the fluid.' (Lehmann's 'Physiological Chemistry,' vol. ii, p. 436. Sydenham Soc. edition.)

And with respect to the proportion of albumen he adds:—

"The weight of albumen contained in any single specimen of urine would convey very incorrect data on which to calculate the quantity passed in the twenty-four hours. An estimate of the quantity passed in the twenty-four hours can only be obtained by collecting all the urine passed in that interval. The ordinary method is to collect and measure the whole, and, by taking a part, the amount of albumen contained in that part represents the proportion

contained in the whole. Such a process is totally inapplicable in private or general practice. It is next to impossible to collect all the urine of the twenty-four hours; what is passed during the action of the bowels cannot be collected; indeed, it is only in hospital practice that such observations can be attempted. For practical purposes of every day use a correct and minute estimate of the amount of albumen passed is out of the question, a rude approximation is all that can be obtained, and is all that is necessary for practical purposes, and this can be obtained readily by noting the space the coagulated albumen occupies in the tube after being allowed to rest; and the phraseology recommended by Dr. Christison expressive of the proportions observed by the eye, may with advantage be employed.

"Dr. Christison's degrees of coagulability:—

- I. Gelatinous by heat.
- II. Very strongly coagulable by heat—nearly the whole tube.
- III. Strongly coagulable—half the tube.
- IV. Moderately coagulable—one quarter of the tube.
- V. Slightly coagulable—one-eighth.
- VI. Feebly coagulable—less than one-eighth.
- VII. Hazy by heat—no visible flakes."

Failing to obtain reliable evidence in either of these sources, Dr. Basham then takes the microscope and inquires whether such evidence is to be found in the changes of the tube-casts, or the cell-structures accompanying them, which appear from time to time in albuminous urine. And here he finds what he seeks for. He has found it, moreover, so often and in so many different circumstances, that all reasonable doubt must be removed as to the reality of the discovery. For several years past, indeed, he has made almost daily examinations of the urine of all the patients under his care in the Westminster Hospital suffering from renal dropsy and other forms of renal disorder, and made drawings of the most characteristic appearances in the case-books, so that a comparison of the morbid deposits of any period of the disease might be readily made, and one case easily compared with another. In this way he has found that the epithelial cells thrown off from the renal tubes, as well as the tubes accompanying them, suffer very material and obvious alteration as the disease of the kidney advances or recedes. He has found, indeed, that "attention to the microscopic character of these casts will at any time enable the practitioner to estimate the nature and intensity of the disease, its advance or decline, its form, and its probable termination." The blood casts represent the period of active hyperæmia and hemorrhage; the coarsely granular epithelial cast, with its compound inflammation corpuscles, and accompanied by amorphous granular flakes, stained with hæmatin, the period of inflammatory exudation; the finely granular, semi-transparent casts, with scattered epithelial and granule-cells, the subsidence of that stage. Transparent casts, with compound cells, with isolated, resplendent molecules, and grape-like clusters of granules, represent a stage of chronic, sub-acute disease of grave import; and if these casts become more and more loaded with large and gradually increasing fat-granules, and even oily drops, the progress of fatal fatty degeneration is clearly marked.

It is not to be supposed that this great step in diagnosis and prognosis, from which we are indebted to Dr. Basham, is, under ordinary circumstances to be made by a single examination of the urine. On the contrary, Dr. Basham guards us from expecting this, and distinctly states that it is rather by comparing the character of the deposit of one period with another, and by carefully noting the altered appearances of the casts and cells, and the tendency of the change taking place in them, that a correct estimate is to be formed of the advance or recession of the disease.

As to the rest, we would say that the lectures and cases upon which the work is based are so arranged that the characters of the simple and earlier forms of deposits are described before the characters of the more advanced stages of renal degeneration. In doing this, the general characters and symptoms, as well as the principles of treatment, are well brought out. In a work of this character plates of a very superior kind are indispensable, and these are provided with the most lavish liberality from the pencil of Dr. Basham

himself, every case almost having its special drawing. We know, indeed, of no plates which surpass them in excellence, and we can say of them, without exaggeration, that the image which they convey to the eye is almost as exact as that which is transmitted by the thing itself through the microscope.

On Diabetes and its successful Treatment. By JOHN M. CAMPLIN, M. D. (London, Churchill, 12mo, pp. 60, 1858.)

This volume is a reprint of a paper published in the 'Transactions of the Royal Medical and Chirurgical Society,' together with a sequel of the author's history and experience since the publication of this essay, and a brief account of the recent physiological inquiries which relate to the subject.

The case of Dr. Camplin, we do not hesitate to say, is one of great practical importance, and bran cakes,* we feel sure, will prove to be a very valuable addition to the jувantia in diabetes.

"In November, 1844," says Dr. Camplin, "I was prostrated by an attack of diabetes. The symptoms were well marked, and need not be detailed; the professional friends consulted did not expect that I should rally; and one of them went so far as to say, when asked to prescribe for me a particular remedy, that it would only be 'smoothing my passage to the grave,' and yet here I am, with urine varying from 1.016 to 1.020, instead of 1.040 and upwards, and although ten years older, seldom or never flinching from any professional duty.

"There being no doubt as to the nature of my complaint, an altered diet was immediately advised, and a run to the Isle of Wight; the latter I could take for a few days only, and that in the commencement of a cold, dreary winter, yet it assisted materially in arresting my downhill course, and time was gained for the effect of remedies and diet.

"All my advisers (and I had several, whose kindness can never be repaid) recommended meat, fish, and eggs, with the cruciferæ; they differed, however, in minor points; one advised coffee, another tea; one wine, another brandy, &c. As a substitute for bread, cakes or biscuits made of washed flour and lard were at first recommended; these soon quite disagreed. The gluten bread was next tried, this latter, unpleasant as it was, I took as long as it could be borne; but after a year or two, it became insupportable, and when passing a few days at Brighton I availed myself of the advantages of change

* "*Formula for Bran Cakes.*—Take a sufficient quantity (say a quart) of wheat bran, boil it in two successive waters for a quarter of an hour, each time straining it through a sieve, then wash it well with cold water (on the sieve), until the water runs off perfectly clear; squeeze the bran in a cloth as dry as you can, then spread it thinly on a dish, and place it in a slow oven; if put in at night let it remain until the morning, when, if perfectly dry and crisp, it will be fit for grinding. The bran thus prepared must be ground in a fine mill and sifted through a wire sieve of such fineness as to require the use of a brush to pass it through; if grinding once is not sufficient, it must be ground again until quite soft and fine. Take of this bran powder 3 oz., three new-laid eggs, 1½ (or 2 oz. if desired) of butter, and rather more than half a pint of milk, mix the eggs with a little of the milk, and warm the butter with the other portion; then stir the whole well together, adding a little nutmeg and ginger, or any other agreeable spice. Bake in small tins (pattipans), which must be well buttered, in a rather quick oven for about half an hour. The cakes, when baked, should be as thick or a little thicker than a captain's biscuit; they may be eaten with meat or cheese for breakfast, dinner, and supper; at tea they require rather a free allowance of butter, or may be eaten with *curds* or any of the soft cheeses.

"In the 'Medical Gazette,' May 2d, 1857, was published what I considered an improved form, which resembled the above in its composition, only that I directed, first, 35 grs. of sesqui-carbonate of soda, and then 3 drachms of dilute hydrochloric acid, to be stirred into the mass immediately before baking, and that it should be baked in a basin as one loaf or cake.

"This amended form, as it was termed, is very agreeable, but requires more management, and does not keep so well; consequently, I now generally recommend the old formula.

"I cannot be too particular in directing that the bran should be reduced to a very fine powder, and, in order to this, as well as to deprive it of its starch, it should be well washed and dried; by this means it is rendered friable, and the process shortened—that which remains after the first sifting, should be ground again and again until it becomes fine."

of air, and Sussex bread, to cast it aside, and have never resumed it. On returning to town, I did pretty well for a time, eating the ordinary bread very sparingly, but afterwards I relapsed, and was almost in despair. Having before this seen Dr. Prout occasionally, and now telling him of my dilemma, he suggested a kind of bran cake, which was immediately prepared according to his directions; it was by no means a pleasant composition, but that was not the worst, for the bran acted powerfully on the bowels, and it could not be continued in that form. We have all heard that 'necessity is the mother of invention,' and I immediately set a mill-maker to work to make me a mill which should grind the bran into a very fine powder; this means, and careful sifting, overcame the difficulty, and enabled me to succeed in the preparation of a kind of cake which was continued for some years, and with the best effects.

"I had before this been more rigid in my diet than directed by the doctor, who, to use his own expression, 'tolerated things which he did not advise.' My protracted sufferings, however, now determined me to put away everything saccharine or amylaceous to the utmost possible extent, and I therefore gave up wine, at the same time that the bran cake enabled me to discard entirely the use of bread. I now soon became decidedly convalescent, and have never had my diabetic symptoms return with violence. The cold of November still produces unpleasant feelings, and some anxiety, but has not for two or three years rendered necessary even a partial return to the bran cake; and for six or seven winters past I have not required the double clothing, and the hot bottle in the carriage, which were sometimes indispensable. There can be no question as to this bran cake having greatly prolonged my life, as I was fast becoming a decrepit valetudinarian before its use, and should, in all probability, have altogether broken down long since; and I am the more anxious to dwell on this part of my history, from the conviction that if the bran cake, or some modification of it, were made on a larger scale, it might be used in our hospitals, and patients might be supplied with it after their discharge, thus obviating one of the difficulties as to their diet, after temporary recovery.

"At the present time I feel well, so far as the diabetes is concerned, yet am of opinion that it would be no difficult matter to bring on a return; and believe that there are few who recover so perfectly as to be able to use the indiscriminate diet of former days. I am indeed acquainted with some who go so far as to take potatoes, and even sugar and fruit; but they do this very sparingly, whilst others have fallen speedy victims to imprudence in this respect; and I would never recommend any one to make the experiment without great caution.* In my own person, the specific gravity has increased from 1.025 to 1.037, from taking a glass or two of fruity port wine without any other assignable cause; and rice puddings, persisted in for a short time, would formerly produce the same effect. I say formerly, with regard to rice, for during the late epidemic I suffered rather severely from choleraic diarrhoea, and scarcely know what would have been my fate if restricted to my old diet of meat, greens, and bran cake; as it was, rice and macaroni many days together (without any fresh vegetables) produced no alteration of urine, though a sweet taste after meals sometimes reminded me of former days.

"To return to the early history of my case.

"Fat meat and eggs were more especially directed for me, and were taken without any immediate ill effects, but I am of opinion that they produced great biliary derangement, more especially the eggs, the free use of which has been laid aside long since.

"Fish is a most important article of diet for the diabetic, but does not require particular notice, as its use only requires the ordinary cautions for those in moderate health.

"I have never found it necessary to disallow the use of milk; the sugar contained in it certainly does not pass into glucose readily, or under ordinary circumstances; and this induces me to notice, that, as to farinaceous substances, their disposition to pass into sugar is not to be estimated simply by their pro-

* No experiment on diet should be made in the winter, particularly if the northeast wind prevail.

portions of gluten and starch, and it does not seem to me that anything but experiment will determine the degree in which they do this. Some kinds of bread injure more than others; and in my own person brown bread has often produced greater sweetness in the saliva than that made of fine flour; and it is my opinion that unfermented flour in the various forms in which we use it is less liable to pass into sugar than bread. I have not, however, had opportunity to test this on a sufficiently large scale to be certain of the fact. Genoa macaroni I believe to be one of the best substitutes for the bran cake; the finest macaroni not only contains more gluten than ordinary bread, but the long boiling in water which it ought to undergo before being prepared for the table, further diminishes the proportion of starch.

"With regard to vegetables, I have almost confined myself to the cruciferæ, as they can be obtained in London during the greater part of the year; the young cabbage, is, perhaps, at once the cheapest and best for ordinary use. Cauliflowers, broccoli, Brussels sprouts, &c., give considerable variety. Seakail is excellent, but rather too expensive; the late Dr. Pereira recommended saur kroot to me: but having fresh vegetables at hand I have never tried it. Since my recovery, I have taken French and scarlet beans, without injury; but should consider the cruciferæ highly preferable for the actually diabetic. Spinach is generally considered allowable, and indeed recommended; and those who reside in the country might add to the list other plants of the same natural order, such as the *Chenopodium bonus Henricus*, and the younger leaves of the common beet, both of which I have tasted, and found them very agreeable. My friend, Mr. Ward, in conversation with him on the subject, suggested that the leaves of the *Beta Cicla* and *Maritima* may be used as pot-herbs; and perhaps the list might be still further enlarged.*

"As to tea or coffee, I have no hesitation in giving the opinion that, in a majority of cases, tea is to be preferred. Milk may be taken with it freely; cream sparingly.

"As a beverage at meals, water or toast-water may be used, and, instead of wine or malt liquor, a small quantity of brandy and water, not above a table-spoonful of the former. Wine is better excluded, except claret, which is too expensive for common use. There are several other wines which may be allowable as being free from sugar, but of them I have no experience. The pale French brandy is, no doubt, the best; but I have tried the English *eau de vie* made in imitation of it, and found it to answer very well, and Dr. Bence Jones informs me that he has sometimes directed rum, which, being without sugar, is, *quoad hoc*, as eligible as brandy. Sponging with tepid water, followed by friction, has been so beneficial, in more than one case in which I have been consulted, as to call forth the highest encomiums. For myself, I have only practised sponging with cold salt and water in the summer, and an occasional warm bath in the winter; these I have used with great advantage.†

"Warm clothing—a leather waistcoat, and gutta percha soles to the boots, in winter, are very important. It would be superfluous to descant on the advantages of change of air and occupation; but I may mention that, whilst at home, I constantly used the bran cake; if I left town for a time, and took the prepared bran with me, I seldom used it beyond two or three days, and never felt the worse for taking the liberty of substituting bread under the influence of change of air and scene. When I returned home I continued the bread, until warned by a partial recurrence of the symptoms to have recourse to my bran cake. This took place several times before I was able altogether to discontinue its use."

Dr. Camplin does not go into the *medical* treatment of diabetes. He does not know, he tells us, of any specific remedy. Bitters and alkalies did him great

* Another of the cruciferæ, the watercress, will help to make the breakfast agreeable, and I see no objection to other vegetable products, such as celery, endive, mushrooms, &c., when in season, if the stomach will bear them, provided we avoid starch, sugar, and the vegetable acids.

† I think it is important that the bathing should be followed by friction, and, if plain water is used, hair gloves should be employed, or some means of encouraging a sustained action on the skin.

service at one period of his attack, and the remedy which he is disposed to mention before others is the citrate of ammonia in the effervescent form, generally combined with citrate of iron. Speaking of the cause of his malady, the author says:—

"In my own case, two causes had long been at work: the wear and tear of a laborious profession, and a diet in which fruits, rice, &c., had too large a share; and the disease, which had no doubt been creeping on unobserved for some time, was brought to its acme by eating freely of apples, which the unnatural thirst rendered peculiarly grateful, and at the same time undergoing unusual fatigue, and this too in the month of November. During one night passed in watching a somewhat anxious case, the urine became very great in quantity, as well as abnormal in appearance, and the nature of the complaint was too obvious. My pallid cheeks and sunken countenance, then and for a long time afterwards, will not soon be forgotten by myself or my friends."

Notwithstanding a pretty free use of food containing starch there was no return of the symptoms of diabetes until November, 1854, when the setting in of the cold winds appeared to be the cause.

"When these symptoms had attained considerable severity, they were partially checked by additional warm clothing, and restriction to a very small quantity of brown bread; at length this failed, and on the 5th of March the specific gravity of the morning urine being 1.041, that of the afternoon 1.035, the quantity very considerable, with dry mouth, and tenderness in the back, particularly over the right kidney, it began to be time to take some decisive step; and I resumed the bran cake. The effect was immediate. On the 8th, the morning urine was scarcely 1.020, the afternoon 1.015, the quantity normal; and although taking no bread, and less meat, I was already beginning to regain flesh;* that the change was owing to the substitution of the cake for the brown bread was sufficiently obvious, as the weather continued cold, with a prevalence of northeast wind, and I had considerable remains of catarrh.

"Since the weather has become mild, I have been able to resume amylaceous food partially, and without injury; and, in fact, consider myself well.† The cessation of the diabetic symptoms was followed by congestion in the head, which harassed me several days, but gradually subsided under the use of citrate of ammonia, and small doses of *vin. colchici*; the uneasiness in the back left me at once, as well as several sensations difficult to be described. I have not yet ventured to return to the use of the bread, but continue the bran cake at breakfast and supper; at dinner, two or three times a week, after meat, or fish, and greens, I allow myself puddings of flour or macaroni; at tea, small cakes made with flour, &c."

Another relapse took place in the autumn of last year during a few days' relaxation at the sea-side.

"Accidental exposure to the east wind and damp produced severe fever and rheumatism, which first confined me to bed, and then sent me home very much broken down. After some time these complaints were subdued, but great debility remained, and I perceived a return of old symptoms, in the frequency of micturition, and, on examining the specific gravity of the urine found it 1.036.

"For a long time previously I had taken bread regularly, and other farinaceous matters occasionally; but, with this state of things, determined to return to the bran cake.

"On September 24th, my urine, according to my friend Dr. Garrod's glucometer, contained seventeen grains of sugar to the ounce.

"September 28th (only four days after the alteration of diet), it was found to contain less than half a grain, indeed only a trace.

"For a short time I followed my plan rigidly, restricting myself to meat or

* I have often remarked the rapidity with which this has taken place; it has been much more striking than its opposite.

† In addition to my own observation (with both the potash and copper tests), I may mention that my friend Dr. Bence Jones kindly examined a specimen the other day (June 19th), the sp. gr. was 1.020, and he found no trace of sugar.

by the action of the muscles of the spine and the abdomen, the diaphragm being altogether passive. In this manner, by the regularly alternating dilatation and constriction of the thoracic cavity, the air within the lungs is alternately increased and diminished in amount; and thus a regular exchange is secured. The number of the respiratory movements (that is, of the acts of inspiration and expiration taken together) may be estimated at from fourteen to eighteen per minute.

It may also be remarked, that from the peculiar mode in which the ribs are articulated with the spinal column at one extremity, and from the angle which they make with the cartilages that connect them to the sternum at the other, the act of elevation tends to bring the ribs and their cartilages more into a straight line, and to carry the former to a greater distance from the median plane of the body, whilst the sternum is also thrown forwards; consequently the elevation of the ribs increases the capacity of the thorax upwards, forwards, and laterally. Although the range of motion between each vertebra and the ribs attached to it is very limited, yet the whole framework of the chest enjoys such mobility, that by a deep inspiration its cavity is sometimes more than doubled.

In difficult respiration, moreover, the muscles of the limbs are made to assist in respiration—the patient seizing hold of any fixed object for the sake of a firm point for the muscles to act from; and that in deep respiration the greatest enlargement of the thoracic cavity in both sexes is made by the ribs, and not by the diaphragm. It appears very questionable whether the diaphragm is affected any further than being flattened, and that without descending.

The following rules for the treatment of apnoea are deducted from actual experiment, and are in accordance with established physiological principles.

I. *To adjust the patient's position.*

Place the patient on his back, with his shoulders raised and supported on a folded article of dress.

II. *To maintain a free entrance of air into the windpipe.*

Draw forward the patient's tongue, and keep it projecting beyond the lips. If the lower jaw be gently raised, the teeth may be made to hold the tongue in the required position. Should it be found necessary, the tongue may be so retained by passing a handkerchief under the chin and fastening it over the head.

III. *To imitate the movements of deep respiration.*

Raise the patient's arms upwards by the sides of his head, and then extend them gently and steadily upwards and forwards for a few moments. (This action enlarges the capacity of the chest by elevating the ribs, and induces inspiration.)

Next, turn down the patient's arms, and press them gently and firmly for a few moments against the sides of the chest. (This action diminishes the cavity of the thorax, and produces a forcible expiration.)

Repeat these measures alternately, deliberately, and perseveringly, fifteen times in a minute.

IV. *To induce circulation and warmth, and to excite respiration.*

Rub the limbs from the extremities towards the heart. Replace wet clothing by warm and dry covering. Occasionally dash cold water in the patient's face. These measures are perfectly compatible with the systematic performance of the imitation of the movements of respiration. A similar remark applies to the use of the warm-bath, if indicated.

Explanatory remarks.

Rule I.—This posture is not essential; but in the position recommended the vital capacity of the chest is larger than in any other recumbent attitude. The bony framework of the chest is more free to move, and both sides can be expanded at the same time. This, in fact, is precisely the posture chosen by persons suffering from dyspnoea.

Rule II.—In this way the patulous orifice of the windpipe is raised and drawn forward, so that nothing intervenes between it and the natural channel of air through the nose. The tongue is entirely prevented from falling back into the throat, whilst the extent to which the windpipe is put on the stretch is clearly indicated. The pharynx also is sufficiently opened to allow of the removal of liquids, &c., from the mouth, nose, pharynx, &c., if these have not been completely displaced by previous suitable treatment.

Rule III.—This process, in short, accomplishes artificially for the patient exactly what he himself would effect, and by the same muscles, if he had but the will and the power to draw a deep inspiration.

Possibly the elevated position of the arms, together with the muscular compression exerted on the veins of the upper extremities, might favor the descent of blood from them into the chest, at the same time that the tendency to a vacuum produced in the thorax by the elevation of the ribs was inducing a rush of fresh air into the lungs.

At the same time that the arms are extended steadily upwards, the lungs might be filled with air by a mouth-to-mouth inflation.

The following are some of the advantages of this new method:—

1. Inspiration may be made to precede expiration, or it may be second in order, at the will of the operator.
2. The expansion of the thorax is artificially insured, and wholly under the control of the operator.
3. It may be adopted when the patient is in the warm-bath.
4. The patient is not liable to be injured by the manipulation.
5. The contents of the stomach are not liable to pass into the windpipe.
6. The tongue is prevented from obstructing inspiration.
7. Both sides of the chest may be equally inflated.
8. This process is entirely in harmony with that of nature.
9. A larger amount of air is inspired than by any other method.
10. This method is most easy of adoption.
11. Pure atmospheric air is inspired.
12. No apparatus is required.

The Royal Humane Society directs its attention mainly to the circulation; Dr. Marshall Hall principally to the respiration.

It is intended by this method to combine the advantages of both these plans. A successful case of resuscitation has already been recorded.

A Dictionary of Medical Science, containing a concise explanation of the various subjects and terms of anatomy, physiology, pathology, hygiene, therapeutics, pharmacology, pharmacy, surgery, obstetrics, medical jurisprudence, dentistry, notices of climate and of mineral waters, formulæ for officinal, empirical, and dietetical preparations, &c., with French and other synonyms. By ROBLEY DUNGLISON, M. D., LL. D., Professor of the Institutes of Medicine in the Jeff. Med. Coll., Philadelphia. Fifteenth edition, revised and very greatly enlarged. (London, Trübner and Co., imp. 8vo., pp. 992, 1858.)

On the present edition of this well-known and invaluable work the author has bestowed more than usual labor. He has "revised and corrected" the whole, and besides this he has added about *six thousand subjects and terms*. The publisher, also, has done his part of the work in a very creditable manner, and we have as little to desire in the manner in which it is got up, as in the matter itself.

The Microscope in its application to practical medicine. By LIONEL BEALE, M. B., F. R. S., Physician to King's College Hospital, Professor of Physiology in King's College, &c. Second edition, with 270 woodcuts and a colored plate. (London, Churchill, 8vo., pp. 390, 1858.)

The author has greatly increased the usefulness of this very valuable work by revising it throughout, and by rewriting several of the articles. He has also omitted much that related merely to manipulation in the first edition (which

will be found in his 'How to work the Microscope'), and added instead much that bears exclusively upon medicine, with sixty new and original woodcuts. He has, indeed, produced a work which is thoroughly practical and useful.

On Cough; its causes, varieties, and treatment, with some practical remarks on the use of the Stethoscope as an aid to diagnosis. By ROBERT HUNTER SEMPLE, M. D., Physician to the Northern Dispensary. (8vo, Churchill, 1858, pp. 174.)

This book, which consists of a sound and practical exposition of the subject of which it treats, is divided into three parts; in the first, the anatomy of the parts concerned in cough is briefly described; in the second, the physiology of that affection is explained; and in the third, the pathological condition of the organs and tissues in the diseases characterized by cough, is successively detailed, and the treatment of each case is deduced from the morbid manifestations which give rise to it.

In the pathological and therapeutical portion of the work, the diseases of the respiratory organs occupy, of course, the most prominent place. On the much vexed question of the treatment of pneumonia we find the following remarks:—

"The treatment of pneumonia has undergone a great number of changes during late years; it was treated by Laennec, with great success, by the administration of large doses of tartar-emetie; some twenty years ago it was the custom to bleed largely in all the cases which would bear it; but in the present day bleeding is not so often practised, and some are even disposed to think that antiphlogistic treatment is unavailing or injurious. My own opinion is that the type of pneumonia, like that of many other diseases, has changed of late years, and that patients will not bear bleeding so well as they did at former periods. During my pupillage I bled a great number of persons, under the direction of my medical instructors, and I afterwards did so upon my own responsibility in a large public practice, and I cannot call to mind any cases where the results were not satisfactory. Of course, it may be said that the patients recovered in spite of the treatment, and not in consequence of it; but I cannot come to that conclusion when I recollect the immediate and marked benefit which resulted from the adoption of this measure, and the perfect recoveries which generally ensued. If the same mode of treatment is not so successful at the present day, I believe the cause to be, that disease has now a tendency to run rather into the low and depressing forms, than into what may be called the high or sthenic forms; and that, therefore, the treatment, generally speaking, ought, in the present day, to be rather of an alterative or supporting character. I never was more struck with the difference existing in the treatment of disease, and, as I believe, in its type, than when I had occasion for some months to attend the practice of the London Fever Hospital. In that institution, which was at first (I speak of some twenty or thirty years ago) situated in a low, crowded, and unhealthy neighborhood, the patients were generally bled largely, and were otherwise subjected to lowering treatment, and the results were quite satisfactory, as was proved by the frequent recoveries which took place; but at the present period, when the patients are situated in an almost palatial residence, isolated, clean, lofty and well-ventilated, they will not bear depletion, and they are actually never bled at all, and even a leech is hardly ever used in the institution. The present accomplished and experienced physicians of the establishment, Dr. Tweedie and Dr. Southwood Smith, have been in the habit of treating fever and its complications for a great number of years, both in the old and the new buildings, and I do not believe that their former plan of bleeding, and otherwise lowering the patients, is in any way inconsistent with their present system of strengthening and supporting them, but that the recent epidemic constitution requires a different mode of treatment to that which was formerly required."

After describing the different treatment required in the various forms and complications of pneumonia, the subject is thus summed up:—

"Thus it will be seen that the treatment of pneumonia is very different, ac-

according to its nature, the subjects whom it attacks, and its complications with other diseases; and this diversity of treatment may be explained upon rational principles. Those who contend dogmatically that pneumonia should be treated always with depletion, and those who maintain that it should be combated by stimulants, are both right and both wrong; the true method of medication consists in a careful study of all the features of the case, and the adoption of measures which are calculated to be serviceable in the peculiar conditions which the malady may happen to present."

In reference to the treatment of pulmonary consumption, the following remarks are made upon the employment of cod-liver oil:—

"Viewing pulmonary consumption as a variety of scrofulous disease, and observing the very marked influence exerted over such affections by cod-liver oil, it can hardly be doubted by any practitioner that there is some solid advantage in using this agent. Whether it has really the power of arresting the progress of pulmonary tubercle, or causing its absorption, can never be determined with certainty, because we have no means, except by the ear, of ascertaining the condition of the lungs in the living state; but that it does possess such a power is extremely probable, from the results of observation in phthisis and in allied diseases. I have been very much struck by witnessing its efficacy in the scrofulous diseases of children, in whom its operation appears almost marvellous, and in whom, under its use, the most decided symptoms of scrofulous disease unquestionably disappear. Those who admit the latter class of facts, attribute its efficacy to its employment as a dietetic agent; but surely this is begging the question, for if a remedy proves beneficial, of what importance is it whether it is regarded as a medicine or an article of diet? But if it is meant that other articles of diet are equally efficacious, and that if the children of the poorer classes were better fed they would not require cod-liver oil, I think that the reasoning is not consistent with the facts; for it must be remembered that scrofulous disease is not confined to the poor, but that it attacks the children of the wealthier and better classes, who have abundance of food and good nursing; yet in such cases the effects of the oil are quite as striking as among dispensary and pauper patients."

The following observations are made upon the subject of the expatriation of consumptive patients:—

"I cannot refrain from expressing an opinion upon a point on which much discussion has taken place, namely, the propriety of sending away a consumptive patient to a distant land, in the hope of curing the disease in his lungs. I must own my conviction that not only very little good, but very much harm is generally done by such a proceeding. A patient is too often torn away from his home and his relatives, to perish in a foreign soil; or after a brief sojourn in the land of his banishment, to return in a worse condition than when he went away. When the patients are fond of travelling, are able to bear the expense of it, and can carry their relatives and their household with them, there may be an advantage in a trip to the Mediterranean, or a residence in the south of France, or a tour in Egypt; but in the great majority of cases, our own country affords as much physical benefit to the sufferer, and is perhaps far more congenial to his sentiments and his affections, not to mention pecuniary and other domestic considerations."

In the treatment of acute laryngitis the antiphlogistic plan is insisted upon, and the opposite system is thus denounced:—

"While treating of this subject, I cannot help denouncing with all the force which I possess, the inefficiency, and I might add the knavery of the so-called homœopathic system, in the management of such a disease as acute laryngitis, in which it may be said '*horæ momento, aut cita mors venit, aut victoria lætæ*,' and in which the delay of efficient measures may entail the worst results. To mock the sufferings of a dying patient, by the administration of inert and useless globules, while the adoption of a rational and vigorous plan of treatment might restore him to life, appears to me to be nothing less than to ridicule human misery, and to welcome the approach of the angel of death. I can only hope that if any honest homœopath (if there be such a person) should meet with a case of acute laryngitis, he would, at least for the occasion, re-

nounce his creed, and prefer the sacrifice of a dogma to the destruction of a fellow-creature. Nor can I omit to observe, that I by no means coincide in the views of those who believe that because diseases have, in the present day, changed their type, and because bleeding is not generally so well borne as it formerly was, *therefore*, all bleeding and all depletion are injurious. I believe, on the contrary, that in certain cases the abstraction of blood is not only justifiable but is imperatively demanded, and I believe that acute laryngitis is a case in point."

II.

REPORT ON THE PROGRESS OF SURGERY.

On Amputation by a long and a short Rectangular Flap. By THOMAS P. TEALE, F. R. C. S., Surgeon to the Leeds General Infirmary, and Member of the Medical Council of Great Britain. Illustrated by engravings on wood. (London, Churchill, 8vo. pp. 72, 1858.)

THE mode of amputation described in this work will, if we mistake not, be adopted by all surgeons as soon as they become acquainted with it, and this not only because it produces a more perfect and useful stump than that which can be obtained by the ordinary circular and flap operations, but because it lessens appreciably the attendant risks of death. As the title sets forth, Mr. Teale proposes that amputation should be performed by a long and a short rectangular flap—the long flap, which folds over the end of the bone, being formed of parts which are generally devoid of large bloodvessels and nerves.

“The size of the long flap is determined by the circumference of the limb at the place of amputation, its length and its breadth being each equal to half the circumference. The long flap is therefore a perfect square, and is long enough to fall easily over the end of the bone. In selecting the structures for its formation, such parts must be taken as do not contain the larger bloodvessels and nerves. A flap so formed will be for the most part anterior in position as far as regards the general aspect of the body, but superior when the patient is in the recumbent posture, as during the after-treatment.

“The short flap, containing the chief vessels and nerves, is in length one-fourth of the other.

“The flaps being formed, the bone sawn, and the arteries tied, the long flap is folded over the end of the bone; each of its free angles is then fixed by suture to the corresponding free angle of the short flap. One or two more sutures complete the transverse line of union of the flaps. At each side the short flap is united to the corresponding portion of the long one by a point of suture, and one suture more unites the reflected portion of the long flap to its unreflected portion. Thus the transverse line of union is bounded at each end by a short lateral line at right angles to it.

“After the patient has been carried to bed, the stump is laid on a pillow, over which a large sheet of gutta-percha tissue has been spread. *No dressing whatever* is required in the early part of the treatment. A light piece of linen or gauze is thrown loosely over the stump and pillow, and these are protected from the pressure of the bedclothes by a wire-work guard. To relieve tension the lateral sutures may be removed on the following day, but those of the transverse line may be allowed to remain until they are cast off, or appear no longer needed on account of the consolidated union of the parts. When the sutures of the transverse line have lost their hold, if the flaps should gape, a strap or two of adhesive plaster may be applied. Simplicity in the treatment is thus secured, as well as disturbance of the stump avoided.

“To carry out these objects completely, the attendants and nurses must be strictly enjoined not to lift the stump from the pillow without the authority of the surgeon. As there are no dressings to be soiled, and therefore to require removal, the stump generally need not be raised from the pillow for many days, or even for two or three weeks. When there is a discharge of matter, the nurse must remove it frequently by a soft sponge from the subjacent gutta-percha, without lifting the stump.

"The chief advantages of this mode of operating are—

"1st. The avoidance of tension.

"2dly. The formation of a soft covering for the end of the bone, consisting of parts free from large nerves.

"3dly. The non-disturbance of the plastic process, and the consequent placing of the large veins of the limb, as well as the smaller veins of the bone, in a condition the least likely to take up purulent matter and putrid blood or serosity.

"4thly. The favorable position of the incisions for allowing a free outlet for purulent and other discharges.

"The avoidance of tension is secured by the ample size of the long flap. For although the tonic contraction of the divided muscles is allowed to go on unrestrained by circular bandaging or adhesive dressings, the flap is still amply sufficient to cover the end of the bone; indeed, at the time of the operation it often appears superabundant, but in the result it is not found to be so, chiefly in consequence of the great retraction of the short flap.

"The non-disturbance of the plastic process is the chief point on which the future safety of the patient depends. The long flap folding over the end of the bone, and being free from tension, soon acquires an organic union with it. The open mouths of the veins of the bone are thus early sealed; and the chief veins of the limb, protected in the retracted short flap, and undisturbed by unnecessary liftings and dressing of the stump, have also the best opportunity of becoming permanently closed, and of being thereby rendered incapable of taking up purulent and putrid matters.

"There are, however, causes unfortunately beyond our control, which frequently oppose the plastic process. These are epidemic influence, hospital air, the peculiar condition of the general atmosphere, and, more serious than all, the effects of *shock*. The evils of shock are not only immediate, but also remote. A person in robust health may, by the immediate effect of shock from injury, have his life nearly extinguished, and may so far rally as to be submitted to amputation, but the *remote* effects of the shock are still in store for him. In such a case the vital condition of the blood and of the whole fabric of the body may remain so far lowered as to be incapable of setting up a *vigorous* process of repair.

"How careful, therefore, ought we to be to husband to the utmost the feeble reparative power that exists."

Mr. Teale then proceeds to set forth the results of this operation during a period of three years, extending from June 16th, 1855, to June 16th, 1858. The operation, he tells us, has been performed 56 times, 50 times in the Leeds Infirmary, by Mr. Teale and his two colleagues, Mr. Smith and Mr. S. Hey, and 6 times in private practice, by Mr. Teale himself, his son, and Mr. Wheelhouse. The particulars of the cases are given; the results are as follows:—

56 Amputations.	Thigh . . . 18	Accident . . . 1	Death . . . 0
		Disease . . . 17	Recovery . . . 1
	Leg . . . 28	Accident . . . 1	Deaths . . . 3
		Disease . . . 27	Recoveries . . 14
	Arm . . . 6	Accident . . . 3	Death . . . 0
		Disease . . . 3	Recovery . . . 1
	Forearm . . 4	Accident . . . 1	Deaths . . . 2
		Disease . . . 3	Recovery . . . 1
			Death . . . 0
			Recovery . . . 0
			Deaths . . . 0
			Recoveries . . 3

"To determine the value of this mode of
of amputation, the facts hitherto at our co

lessening the mortality
manifestly insufficient;

but, as far as they extend, their bearing upon this point is highly favorable. The results are more important, as they extend over so considerable a period of time as three years, and as being drawn from the practice, not of one surgeon, but of several.

"The traumatic cases in this series form but a small proportion of the whole, namely, 6 in 56. It may, however, be remarked that of these 6 cases only 1 died; and that the 2 cases of amputation of the lower limb for accident, both recovered. Whereas of 17 traumatic amputations performed during the same period of time in the Leeds Infirmary, by the same surgeons, 10 died, the deaths being in the proportion of 1 in $1\frac{2}{3}$ cases.

"It is, however, only in the amputations of the thigh and leg for disease, as shown in the preceding summary, that the numbers are large enough to warrant their comparison with the standard obtained at the London and provincial hospitals.

"The amputations of the thigh for disease present 3 deaths in 17 cases, or nearly in the proportion of 1 in 6. In the London hospitals the ordinary amputations of the thigh for disease show a mortality of 1 in $4\frac{1}{2}$. In the provincial hospitals the mortality is one in 4.

"The amputations of the leg for disease show a mortality of 1 in 27, which contrasts most favorably with the ordinary modes of amputating. In the London hospitals these amputations are attended with a mortality of 1 in $3\frac{3}{4}$, and in the provincial hospitals of 1 in 4."

For the purpose of further comparison, Mr. Teale gives in tabular order the amputations *by other methods* in the Leeds Infirmary during the same period of three years. Of these cases this is the summary:—

24 Amputations.	Thigh . . . 2	Accident . . . 2	Death . . . 1
		Disease . . . 0	Recovery . . . 1
	Leg . . . 12	Accident . . . 6	Deaths . . . 3
		Disease . . . 6	Recoveries . . . 3
	Arm . . . 5	Accident . . . 5	Death . . . 0
		Disease . . . 0	Recoveries . . . 6
	Forearm . . . 5	Accident . . . 4	Deaths . . . 4
		Disease . . . 1	Recovery . . . 1
		Accident . . . 5	Deaths . . . 1
		Disease . . . 0	Recovery . . . 0
		Accident . . . 4	Deaths . . . 2
		Disease . . . 1	Recoveries . . . 2

and Mr. Teale's remarks are these:—

"This series of cases, although they are not numerous, is interesting from the close resemblance of its results to those obtained at the London and provincial hospitals on a much larger scale.

"It is further important, as showing that during three years over which our observation of the new mode of amputating extends, purulent and putrid poisoning of the blood prevailed. This fact was also too painfully shown by other cases as well as by the amputations.

"On referring to the table of amputations by the new method, it is seen that of 6 cases of amputations for accident, one death only occurred, and this death was not pyæmic, but was caused by shock; whereas, in 17 cases of accident, in which amputation by other methods was performed, in the same hospital, by the same surgeons, 10 died, and of these 10 deaths 7 were caused by purulent or putrid poisonings, as shown by their peculiar deposits in the viscera, or by unhealthy recent inflammation of membranous surfaces, more especially the serous."

The character of the stumps obtained by this method of operating is then considered. Their chief peculiarity consists in their having a soft mass of tissues,

devoid of large nerves, movable over the sawn end of the bone, which enables them to bear pressure on their extremity. This is a vital point, for in the ordinary circular and flap operations the cicatrix is adherent to the end of the bone, and, as Mr. Teale shows by the evidence of surgical mechanics in large business, as makers of artificial limbs, the extremity of the stump is always intolerant of pressure. Of the cases in which the operation has been performed there are already 13 which show clearly that the stump will bear pressure.

"All these patients," says Mr. Teale, "are in full exercise, bearing a considerable portion of the weight of the body on the end of the stump. None of them are thus bearing less than one half of the weight, some two thirds, and one the entire weight, in consequence of the limb having shrunk in size, and therefore moving loosely in the socket. All these patients are able to pursue their ordinary avocations for the full period of a day's work. One young woman can walk ten miles a day; and the youth, who bore the entire weight on the end of the stump, walked in this condition on one day thirty miles."

Upon this subject Mr. Teale adds:—

"Having ascertained the capability of these stumps to bear pressure, I have endeavored to determine the degree of it that is most favorable for easy progression; and the conclusion I have arrived at is, that it is best to divide the pressure pretty equally between the end of the stump and the upper part of the limb.

"I therefore recommend to the instrument-maker, in the first instance, to allow the stump fairly to touch, but not to press strongly upon, the bottom of the socket. The patient is then instructed to add to the bottom of the socket from day to day a circular piece of flannel, until he bears on the end of the stump fully one half of his weight. The pressure may, indeed, be gradually increased beyond this point, but such increase I believe to be unnecessary and undesirable."

After these general remarks, Mr. Teale proceeds to consider the particular mode of amputating the thigh, leg, arm, and forearm, and here the reader has all the help which he can receive from excellent wood-cuts.

In conclusion, we would again express our belief that all surgeons will unhesitatingly adopt this mode of amputating as soon as they are acquainted with it, and we congratulate Mr. Teale upon this great addition to his high reputation as a surgeon.

On Ophthalmostasis, with an account of an improved method in extraction of the Cataract. By JOHN F. FRANCE, Ophthalmic Surgeon to Guy's Hospital.

After describing at considerable length the various contrivances—all of them unsuccessful—which have been resorted to at different times for the purpose of steadyng the eye, Mr. France proceeds to say:—

"For many years I have been accustomed to steady the eye during extraction by the contact and pressure of the fingers alone, according to the practice of most modern operators; the forefinger holding the upper lid, and restraining the globe's movements upwards, the middle finger on the caruncle curbing its movements inwards. In many cases this arrangement is sufficient for the purpose, and the section is made not only satisfactorily but with ease. In how great a degree, however, that ease is dependent on the patient's strength of nerve and steadiness of eye; and how limited the surgeon's real command of the globe is apt to prove, when the opposite qualities are manifested (especially if the anatomical conformation of the parts happens at the same time to be unfavorable), every operator of wide experience and equal candor must confess. Can no unobjectionable means then be devised which shall render his command absolute?

"In operating for the formation of artificial pupil I first became aware of the practicability of holding the eye perfectly still and motionless, or as nearly so as possible, by the mere application of artery forceps. The idea at length was suggested of extending the use of this instrument to another operation, in which, as far as I know, it had never been employed (at least in this

country) before; of availing myself, in short, of the same resource as in cases of artificial pupil (and with a similar object) in cases of extraction.

"I have since brought the idea to the test of experience, with the result which it is my present object to make known—the result, that is, of facilitating in a degree I could not have anticipated the most critical stage of this operation. The mode in which I proceed is as follows: As soon as the patient is laid on the operating table and all the preparations are complete, standing at his head, I apply the extremity of the forceps with rather firm pressure a little beneath the inferior margin of the cornea, and clasp a somewhat broad portion of conjunctiva and of the submucous fascia securely. Then, taking the instrument between the finger and thumb of the other hand, as near as practicable to its closed points, I deliver it to the assistant; whose hand, supported upon the patient's cheek, receives it, and holds it as he would a pen. It is well that the assistant should be practised in his share of duty on the dead subject. The ordinary artery forceps are, on the whole, preferable to those with a spring catch, commonly known as Liston's; but it is of consequence that the nibs should be broad, and the teeth sufficiently prominent. The lower lid requires no further depression than that necessarily produced by the attachment of the instrument to the ball in this way. I then raise the upper lid with the forefinger, direct the assistant to draw the cornea into a central position and retain it there with the forceps, place my fore and middle fingers on the globe in the usual way, and thus perfect the command of the organ. On now making the section, the eye is found steady and motionless; the knife can be deliberately entered, deliberately carried across the chamber, and deliberately brought out on the inner side of the cornea; and counter puncturation being fully effected, and the flap on the verge of completion, the object of the forceps is accomplished, and they are at once disengaged. The remainder of the operation is finished in the ordinary manner.

"I have had much experience in the operation of extraction, having performed it myself considerably upwards of a hundred times; and of course am familiar with its pleasures (so to speak), and its difficulties, its contingent casualties, and the sequelæ of embarrassment attending them. After one or two trials, therefore, I was in a position to estimate the amount of advantage gained by the accessory manipulation just described; and this has proved indisputably so great, that I have employed the forceps without exception ever since. It will, perhaps, be the best way to place before the reader the facts which the current season has enabled me to gather, as practical criteria of the soundness of my conclusions.

"I have, then, since conceiving the idea that forceps would be beneficially available in this operation, performed extraction in the following cases; the recumbent posture; the superior section; generally the previous application of atropine; Beer's knife; and the use of the right or left hand respectively, as the cataract was to be removed from the right or left eye, being adopted in all; several of the patients had cataract in both eyes, but that operated on alone is indicated."

Then after relating twenty cases in which he had put this method of operation to the test, Mr. France proceeds to say:—

"The above examples comprise all the cases of extraction I have operated on during the present season, since adopting the use of the forceps; and the effect of the instrument unquestionably been in an eminent degree advantageous. It has facilitated the operation in difficult cases, in exact proportion to their previous difficulty and risk. This was strikingly evinced in Cases 11 and 16; both of which patients had, at a former period, occasioned the utmost anxiety, from the impediments their restless eyes presented to the satisfactory performance of the operation. They, indeed, recovered their sight well, but it was in spite of dangerous obstacles. This year they each recovered the sight of the second eye, under circumstances strongly contrasted; that which was so embarrassing before was now effectually surmounted at the very outset, by the simple means we are considering. Still more remarkable in some respects is Case 17, that of the sailor; who on two previous occasions had proved so utterly uncontrollable, that I was compelled to desist from the attempt to ope-

rate. On the present occasion, with the aid of forceps, after a little preliminary trouble, the globe was brought into and held in a sufficiently favorable position for a good section to be made. Could more convincing evidence be afforded of the value of this appliance?

"The assistance rendered by the forceps is further illustrated by the fact, that in not a single case did premature escape of the aqueous humor (with its attendant inconvenience of the iris folding over the knife, and forbidding the immediate completion of the section on pain of wounding that membrane) occur. In three cases only did the first incision prove from any cause inadequate, and resort to the bistoury become expedient; and it was in one of these alone (in manipulating the bistoury after the forceps were detached) that the iris was sensibly touched.

"I am well convinced that the advantages of the mode of operating now recommended will be fully appreciated upon trial; it may, therefore be better for me to bestow a word or two in anticipation of any objection which might perhaps deter some one from the experiment. Really, the single objection which occurs to me as sufficiently plausible to merit notice (if the directions above given be followed, and especially that of disengaging the forceps as soon as counter-puncturation is complete, and before cutting out), is, that the conjunctiva might possibly suffer injury from the forceps sufficient to awaken troublesome inflammation, and compromise the result. A conclusive answer is afforded by experience: no mischief has, in any case, under my observation, ensued; and this fact is substantiated, not by the foregoing cases alone, but also by numberless cases of artificial pupil, in which forceps are now habitually used, as well as by many others of soft cataract (to which I have latterly extended their use), and which are all equally available for the determination of this point.

"It is right that I should acknowledge myself indebted to the work of Desmarres, already referred to, for the *idea* of adapting artery forceps as an 'ophthalmostat' in extraction, but not for their *advocacy*. He, in fact, discountenances their use, giving a preference it is needless here to impugn to Pamart's lance, and his own peculiar thimble. He appears to have employed the forceps (if at all, which is doubtful) with his own hand, instead of confiding them, as I have done, to another, and thus to have encumbered their application with a serious drawback. For he must, of necessity, in consequence, have committed charge of both lids to the assistant;* and so relinquished the twofold advantage of commanding the upper lid himself, and of aiding, with his fingers in the usual position at the lid and canthus, the influence of the forceps and the guidance of the knife."

Notes on the Surgery of the War in the Crimea, with remarks on the treatment of Gunshot Wounds. By GEORGE H. B. MACLEOD, M. D., F. R. C. S. (Post 8vo. Churchill, 1858, pp. 439.)

The prominence which from necessity given, during the continuance of the Crimean campaign, to the sanitary condition and medical details of our army, threw somewhat into the shade the surgical history of the war, and we possessed no connected account of the results of the surgery practised in the camp and hospital before Sebastopol, until the publication of Dr. Macleod's work. In this volume there is given an admirably written and very valuable and instructive, and even full account of the surgery of the war, although, as the title intimates, a complete history is neither intended nor attempted by the author.

In three preliminary chapters, Dr. Macleod treats of the physical character and climate of the Crimea, the sanitary condition of the camp and army, the diseases which ravaged the troops, and the campaign in Bulgaria; and these chapters present the most vivid and comprehensive yet correct medical history of the war that it has been our lot to read. In subsequent chapters Dr. Macleod

* This is evident from the words, "La pique de Pamart, a comme d'autres instruments nécessaires à la fixation de l'œil, le désavantage d'obliger l'aide à écarter les deux paupières" (vol. iii., p. 184); and is further demonstrated by the figure at page 200.

treats *seriatim*, of the distinctions between civil and military surgery, of the peculiarities of gunshot wounds, of the use of chloroform in the Crimea, of primary and secondary hemorrhage from gunshot wounds, of tetanus, gangrene, and erysipelas, of injuries of the head, of wounds of the face and chest, of gunshot wounds of the abdomen and bladder, of compound fractures of the extremities, of gunshot wounds of the joints, excision of joints, and of amputation.

Each chapter is enriched with the experience of the French surgeons, principally derived from personal intercourse with them, and Dr. Macleod contrasts the surgery of the Crimean war largely with the recorded experience of recognized authorities on military surgery at home and abroad; so that his work, in some respects, forms a species of running commentary, illustrated with recent cases, on the principles and practice of military surgery, and as such it must prove of no small interest to the student and to the military and naval surgeon. An appendix, consisting mainly of the surgical statistics of the war, is added to the volume.

The following extracts, referring to two of the most important questions of military surgery (one dating, with our own army, only from the time of the Crimean war) will, apart from cases, give a notion as to the character of the strictly surgical portion of Dr. Macleod's work.

Effects of the conical ball.—"The great velocity, peculiar shape, and motion of the conical ball, give to its wounds a character considerably different from those which is present in wounds caused by a round musket ball. If fired at short range, and if it strikes a fleshy part, the conical ball produces, I think, less laceration of the soft parts than the old ball; but if the range be great, and the part struck bony, with little covering of flesh, as in the case of the hand or foot, then the tearing, especially at the place of exit, is greatly more marked.

"I have not been able to satisfy myself in all cases, so clearly as the description of authors would lead me to suppose that I could, as to the characteristics which distinguish the wound of entrance from that of exit. That the former is more regular and less discolored than the latter is true in many cases, but that the lips of one wound are inverted, while those of the other are everted, has seldom been clearly marked to my observation. If the speed of the ball be great, and no bone have been struck, then there is little difference in either the size or discoloration of the wounds; but if the flight of the projectile be so far spent as to be retarded by contact with the body, especially if it have encountered a bone or strong aponeurosis, so that its speed is considerably diminished before it passes out of the body, then the wound of exit will considerably exceed in size that of entrance. This is especially true of conical balls. If, on the contrary, the ball be fired close at hand, so that its speed is not sensibly diminished by its passage through a limb, then the difference of size will be very small, and may even be in favor of the wound of entrance, as I had twice an opportunity of observing."

"There cannot be a doubt that the old round ball, if fired at a certain range, comminuted bone, but it is equally certain that at a longer or shorter distance it frequently failed to do so.* When fired a few hundred yards off, it had hardly force to enter the body, but might be diverted, as it has been, by the point of the nose. If it did enter, and impinge upon bone, it might only dent it, as may be seen by an example in the Musée Dupuytren, in Paris; or it might groove it merely, or penetrating the substance of the bone, it might remain at rest without splitting it, as can be verified in any museum of a military hospital. If fired, again, at close range, the round ball might go through a

* I believe that the proportion of cases in which balls have passed through the fleshy parts of an extremity without fracturing the bone, will be found to be much less in the Crimean than in other wars. Thus, in one series of cases mentioned by Deputy-Inspector Franklin, in his report on the wounded at Meanez, thirty-one cases of matchlock wounds of the upper arms are given, and in only one was the bone broken. To work out this point in figures so extensive as to be of any use, would require details not supplied by writers on the old wars.

bone, making a bore as clean and sharp as if formed by a punch. Of this fact many illustrations can be seen in surgical museums. Now, so far as my observation goes, none of these results follow the stroke of a heavy conical ball, such as that used by the Russians, at whatever range it is fired. It never rests in a bone, channels, or perforates its substance, without splitting it like a wedge; nor does it ever come to mark a bone with any touch more gentle than what occasions its utter destruction. In the Crimea we had many opportunities of observing the action of both kinds of ball, and so far as I could judge, their effects were so dissimilar, as almost to justify a classification of injuries founded on the kind of ball giving rise to them. The longitudinal splitting of the bone is so dexterously and extensively accomplished by these balls that, while but a small opening may lead to the seat of fracture, the whole shaft may be rent from end to end. I have repeatedly seen the greater part of the femur so split. Stromeyer has shown that this longitudinal splitting seldom transgressed the line of the epiphysis, an observation which I can most decidedly confirm; for though the injury has at times been sufficiently severe to implicate both, yet the rule has been just as he says.

"Gunshot fractures of the extremities of bone have always been considered dangerous, chiefly on account of the shock, the comminution of bone, and the fact, that the wound leading to it is of such a character that it can heal only by suppuration, and cannot be so closed as to convert it into a simple fracture, which, it is well known, we can sometimes accomplish in such fractures as present themselves to us in civil practice. The cavity of the fracture is thus kept open to the air; the pus undergoes those changes which Bonnet has shown it does under such circumstances, and that severe and prolonged inflammation of the deep and irritable tissues which constitutes the chief danger in compound fractures, cannot be avoided.* Now, all of these dangerous characteristics of compound fractures have been immensely increased by the conical ball. First of all, the shock it occasions is undoubtedly greater than that caused by the round ball, simply because the destruction it causes is much more severe; secondly, the comminution of bone is enormously increased. The number of fragments which are quite detached are much more numerous, and the amount of sequestra, which are so far severed as to be ultimately thrown out before a cure can be looked for, is much greater. Thirdly, the bruising of the soft parts is more extensive, so that the suppuration is more prolonged, and the changes of purulent absorption so much the more multiplied.

"The great loss of substance which follows compound fractures by the conical ball, is the source of one peculiarity in their treatment. The shortening will be greater should consolidation follow, than if the injury had been occasioned by the round ball. The conviction has been strongly impressed upon my mind, by the observation of not a few of these cases, that we ought not to keep up extension in their treatment, except in a very modified degree."

Amputation.—"Military experience on this point must regulate military practice, and the results of civil experience must continue to regulate civil practice. To military surgeons, the question of primary or secondary amputation is a settled one. The experience of every war has more and more confirmed the advantages of early operation, and that in the Crimea has not disturbed the rule; in fact, later observation would lead us to go further, and in place of merely advocating interference within twenty-four hours, the prevail-

* "All the complete fractures of the other bones of the extremities unite when they are well managed; by what fatality are those of the femur not equally fortunate? Is it the diameter of the cavity of the bone; the quantity of medullary substance which it contains; the peculiar structure of the vessels which carry the nourishment; the size and force of the muscles which are attached to it, which, by their weight and pressure, obstruct the passage of the liquids? All these causes united may combine together, and give rise to that want of success which we meet with in treating complete fractures of the femur caused by firearms; but complete fractures of this bone heal very well, whatever cause has produced them, when they are not accompanied by a wound. These reflections, which the bad success of those cruel fractures has suggested, have caused me to present to the public in 1750 a method for amputating the thigh at the hip, and that to try and snatch the wounded from inevitable death."—*Ravanton, 'Chir. d'Armée,' p. 324.*

ing idea at present would be better expressed by saying that every hour 'the humane operation' is delayed diminishes the chances of a favorable issue.

"It is impossible to prove from any returns the full bearing of this question, as the mere number who survived after a given number of operations, performed primarily or secondarily, by no means expresses the terms of the question. It would manifestly be necessary to know how many died before the second period came round, and to these should be added the victims of delayed interference, with all the pain and suffering which such delay occasioned, before we can arrive at a just estimate of the results of either proceeding. The experience in the Crimea in favor of operation was unequivocal in both armies, and needs no illustration from me.

"Chloroform has done much to render the success of primary amputation, as contrasted with secondary, yet more marked. If we believe, as I certainly do, that by the use of this anæsthetic all fear of intensifying the shock is obviated—which was one reason why surgeons delayed operation—then the tendency of military surgery, since the introduction of chloroform, must be to still earlier and more prompt interference.

"Secondary amputations were much more common during the early than the late period of the war—a circumstance which arose from the deficient means of treating the wounded in the camp during the former as compared with the latter period, and thus the necessity that existed of despatching them from camp immediately after being injured; and this, together with the better hygienic condition of the patients towards the end of the war, accounts for a fact, well known to those who served in the East, but which the range of the returns does not enable me to show in figures, that amputations were much more successful as a whole, towards the conclusion, than at the outset of the war. At first, too, when patients were early sent from camp, not a few operations, to my own knowledge, were performed during the 'intermediary' period, and, without one exception, those thus falling within my observation were fatal."

"In considering the statistics of amputation performed during the Crimean war, the figures refer solely to the period between the 1st of April, 1855, and the end of the war, and consequently exclude all the unfavorable part of the campaign, as well as the greater number of the operations which were absolutely performed during the war. It was found impossible to attain to accuracy with regard to the early period, so the field of observation was restricted as stated. It is needless to point out how different must be the lessons derivable from the statistics of this latter period alone, to what they would have been if the whole period of the war had been included.

"During the limited period I have mentioned, there were 732 amputations in all parts performed, followed by death in 201 instances; of these, 654 operations and 165 deaths were primary, and 78 operations with 36 deaths, secondary; giving a percentage of 27.4 deaths overhead—25.22 for the primary, and 46.1 for the secondary operations. If we include only the greater operations, viz., amputations of the shoulder, arm, and forearm, of the hip, thigh, knee, and leg, then we have a total of 500 cases and 199 deaths, or 39.8 per cent.; of which total 440 cases and 163 deaths, or 37 per cent., were primary, and 60 cases and 36 deaths, or 60 per cent. were secondary.

"The increase of the mortality as we approach the trunk may be shown thus, taking the primary amputations alone as giving the most unbroken series:—

SUPERIOR EXTREMITY.

Part.	Ratio mortality per cent.
Fingers	0.5
Forearm and wrist	1.8
Arm	22.9
Shoulder-joint	27.2

REPORT ON SURGERY.

INFERIOR EXTREMITY.

[illegible]

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